Railway Age

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Alphabetical Index to Advertisements, Page 6. Classified Directory of Advertisers, Page 8.

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EDITORIAL

Railway Age

The Table of Contents Will Be Found on Page 5 of the Advertising Section

Notice

Notice is hereby given that the services of Clayton L. Smythe as circulation manager of this publication have been discontinued by us and that he does not now in any way represent the company or any of its publications.

A Proposal to Tax Advertising

The bill to enact a tax on advertising which has been introduced in the lower House of Congress by Mr. Thompson of Ohio is a notable example of childish innocence. Mr. Thompson estimates that the sum spent yearly for advertising in this country is from 300 to 500 millions of dollars, and he has introduced his bill simply because he sees here an "untapped source of revenue." Ten per cent of this sum is what he proposes to take; and he would thus make up for what the treasury is going to lose by having to refund stock-dividend taxes already collected but now declared unconstitutional. When that score is balanced, the advertising tax will be available toward paying the billions in bonuses which it is proposed to give to the soldiers. Aside from this the sponsor (or sponsors) of the bill appear to have given to their project no thought whatever. Printers' Ink tried to interview the congressman, but to all pertinent questions he answered like a school boy—and a school boy too young to write an essay on such a subject. Whether thirty to fifty millions a year would be a fair basis on which to "tap" the revenues of the publishers of the country, or whether a constructive and productive business ought to be taxed at twice the highest rate ever thought of for luxuries such as five-thousand-dollar passenger automobiles, were points on which his mind was a blank. The most that can be said seriously about Mr. Thompson's bill is that, if it ever comes to a hearing, the actual facts concerning the advertising business ought to be aired most thoroughly. That would be all that would be necessary to show the crudity and absurdity of the proposal.

Government by Speech-Making

Samuel G. Blythe, who seems to know well above 90 per cent of all there is to be known about American politics, has expressed the opinion that for a few years past the powers that be in Washington have been trying to govern the United States by the power of the spoken word—by speech-making rather than by deeds. Success, he intimates, has been measured by oratory and the manner of remedying evils has been to dictate a speech on the issue to deliver it, and after securing the widest publicity to let it go at that. We have no desire to be harsh on Attorney General Palmer, who is apparently a very estimable man, but we agree with those who think that Mr. Palmer specialized rather on words than acts in connection with the late outlaw strike of railroad switchmen and firemen. "The purpose of the strikes," said Mr. Palmer, "is to capture the industries of the country, secure political power, overthrow governments and establish a dictatorship of the leaders of the so-called proletariat; they would transport to this country the chaotic conditions that exist in Russia." Mr. Palmer also added that the Department of Justice had known for some time of the plans and that W. Z. Foster of steel strike fame had been active in promoting the railroad strike. Presumably Mr. Palmer may believe that the issuing of these statements is the way to cure the evil of the strike. The general public who pay the bills and the railroad commuters who had to man their own "indignation" specials might have liked to have had it cured in some more effective way, preferably in advance. But perhaps Mr. Blythe is right in the matter after all. Actions may speak louder than words, but words make the most noise and to see one's name in print certainly does appeal.

Newspapers Help Car Efficiency

A new and valuable recruit has enlisted in the campaign to help improve the present railroad situation. The American Newspaper Publishers' Association includes the large newspapers of the United States. The newspapers have had forcibly and directly brought home to them the effects of inadequacy of railway facilities, and of interruptions of railway service, by increasing difficulties many of them have met in securing sufficient transportation for paper. They realize that the danger to American industry and commerce arising from inadequate transportation is not imaginary, but very real. The Association therefore recently sent out a circular letter urging its members to load freight cars to capacity and to load and unload them promptly. More lately, at its annual convention in New York, it adopted resolutions in which it set forth that "the prosperity of the nation is interwoven with and dependent upon the maintenance and efficiency of its railroad transportation facilities." The resolutions then referred to the shortage of means of transportation which exists, and added, "This problem is one affecting the welfare of every individual in the nation, and one to which the widest publicity should be given so that a more intelligent understanding may be had of the situation and the co-operation of all classes be secured in its solution." The Association concluded by resolving that its members should "secure and publish fully the essential facts with regard to the car shortage, and the legitimate necessities of the railways, so that the public may be intelligently advised, and also use every endeavor to co-operate in the present emergency, in conducting campaigns for expediting the unloading and despatch of freight cars, and in other proper ways."

Democratic government is government by public opinion. Public opinion is formed in this country chiefly by the presentation and the discussion of facts in the newspapers. If, in the spirit of the resolutions adopted by their Association, the newspapers will put forth every effort to get and publish the facts and nothing but the facts regarding the railroad situation, and will urge all classes of their readers to do the things which the facts regarding the situation show ought to be done, the railroad problem will be advanced rapidly toward a solution. But the present inadequacy of railroad facilities is so great, and the difficulties in the way of raising capital to remedy it are so great, that even if all who can

help in the emergency do help to the utmost it will be years before the railways will be able to give satisfactory service. The newspapers can contribute enormously to enlightening the public about the situation and also prevailing on it to be patient while the problem is being worked out.

The Proper Cut-Off

IT WOULD BE DIFFICULT to get two locomotive engineers to agree on the best cut-off for any given condition. There is in fact no agreement among enginemen, road foremen and master mechanics on what has always been the most debated subject connected with locomotive operation. The theorist knows that a short cut-off means less steam per indicated horsepower and consequently argues for the shortest cut-off at which the engine will turn a wheel, despite the fact that at low speeds the maximum boiler horsepower cannot possibly be utilized. The engineer who habitually works his engine with a long stroke is unmindful of fuel and maintenance costs. Impartial observation favors the engineer who exercises moderation in the handling of his engine, but even the best engineer occasionally falls down on a bad grade because he fails to get the lever in just the right notch.

It is important, therefore, to find that there *is* a proper cut-off and that within speeds at which locomotives are required to negotiate ruling grades a locomotive may be worked according to an established rule to produce the maximum tractive effort. B. B. Milner, in a paper before the New York Railroad Club, abstracted in the *Railway Age* of April 23, 1920, page 1251, states that the proper cut-off is within certain limits *a function of the speed.* Many practical men have always believed this, but it has remained for Mr. Milner to demonstrate it. The significance of this fact is that every day the greater number of locomotives in operation over difficult grades are not availing themselves of their full potential power. Some engineers, guided by good judgment and long years of experience, are getting the maximum effort out of the machinery under their control, but the majority are not.

It should not require mechanical men long to take advantage of a practicable means for establishing rules that will make it possible for enginemen to know what notch will enable them to get the best out of the locomotive. It is intimated that mechanical means may be perfected for automatically selecting the proper cut-off on difficult pulls, but as the desired cut-off is a function of the speed it would appear to be practicable to determine the proper cut-off for each locomotive class, according to the method outlined by Mr. Milner, and then instruct engineers how to apply this cut-off. Where speed recorders are in use the problem is comparatively simple, as it might be practical to indicate in red figures on the face of the recorder dial the correct notch for the reverse lever at certain speeds.

The Relation of Railway Terminals to City Planning

THAT ADEQUATE, well located railway terminals are necessary to the prosperity and growth of a city has been generally recognized for years. That the development of such facilities should bear a more or less direct relation to the general plan for the development of the city as a whole is a more recent conception. In the past, railway terminals, both freight and passenger, were commonly located, designed and built with regard only to their utility to their owners. As a result, as the cities have grown about them, these terminals have frequently imposed severe limitations on the normal development of the surrounding areas. As these restrictions have become more evident in recent years and as the obligation of the individual citizen and corporation to the community at large has been more fully emphasized, a sentiment has developed that the railways should not be allowed to construct their facilities in highly developed communities without consideration of various other influences affecting the city and its future expansion. The close interrelation between the railway terminals and the city at large is outlined in the report of the railroad terminals committee of the Twelfth National Conference on City Planning abstracted on another page in this issue. It is also borne out by the negotiations preceding the passage of ordinances for large railway improvements in cities, the most recent of which is the agreement just consummated between the Illinois Central and the City of Chicago, the Park Board of that city and the United States War Department, all of whose interests in this terminal were conceded by the road.

The declaration of principles contained in the report of the committee dwells on a number of points which are worthy of consideration. The unification of control and operation within the limits of any city, the prevention of needless duplication of lines and terminals, the "common use" of industrial tracks, the co-ordination of railway and water terminals and the improvement in appearance of railway right of way to reduce the decline in value of adjacent property are considerations which would not have been given serious attention by railway men a few years ago, but which, backed by a growing public opinion, now demand consideration. That a railway owes a duty to the community which it serves is self-evident. That the interests of the community and the railroads are common in many ways is also being realized by city authorities. The best results can only be obtained by a full understanding of the position of each by the other. Railway men cannot afford to ignore the recent trend of public opinion in this direction; rather should they ally themselves with movements of this character and endeavor to direct them along sane, practical lines.

Large Business, Huge Losses, Marked Last Months of Government Operation

COMPLETE STATISTICS regarding the freight traffic handled the total earnings made and the expenses incurred by the railways in January and February, 1920, the last two months of government operation, are now available. Study of these statistics should destroy the illusion which may have been created in the minds of some persons by statements which had been made by defenders of government operation that no large advance in rates would have been necessary to stop the government's deficit if government operation had been continued.

The coal strike ended in December. The recent railroad strikes did not begin until March. Weather conditions in January and February were about normal for that time of year. The total business moved, because of conditions which on the whole were favorable, was much larger than it was in any preceding January and February in history. It is therefore worth while to compare the statistics of traffic earnings and expenses for January and February, 1917, the last time when the railways were under private operation in those months, and the corresponding figures for January and February, 1920, the last two months when the railways were under government operation.

The number of tons moved one mile in January and February, 1917, was 61,000,000,000. In the corresponding months of this year it was 67,470,000,000, an increase of 10½ per cent. Total earnings in January and February, 1917, were $566,200,000. In the same month of this year they were $837,800,000, an increase of 42½ per cent. (This

is exclusive of $50,000,000 of back mail pay which was included in the January earnings by the Interstate Commerce Commission for accounting reasons but which was not earned in that month.) In January and February, 1917, operating expenses were $423,000,000, while in the same months of this year they were $829,000,000, an increase of 96 per cent.

The increase in operating expenses was so much larger relatively than the increase in earnings as to cause a heavy decline in net earnings. There were also some increases in taxes. The results of all these influences are strikingly reflected in net operating income, which is the part of earnings left after paying expenses, taxes, and so on. The net operating income of the railways in January and February, 1917, under private operation was $108,931,000. In January and February, 1920, which marked the termination of government operation, the net operating income was only $1,100,000. How bad the operating results of the railways had become before government operation was ended is made almost shockingly clear when it is stated that the total earnings in these two months were almost $838,000,000, which broke all records, and that nevertheless after expenses and taxes were paid a little more than $1,000,000 of this was left to apply on the standard return guaranteed by the government to the railway companies.

The foregoing statistics are for the Class 1 railways, which were almost identical with the railways under government control. The guaranteed standard return for the Class 1 roads for January and February was $104,600,000. The net operating income actually earned was less than 1 per cent of this amount, the government's deficit in the two months being over $103,000,000. The guaranteed standard return of these roads for an entire year was $905,000,000. It will therefore be seen that if government operation had continued throughout 1920, and the net operating income earned had been relatively as small as it was in January and February, the deficit incurred would have been almost equal to the total guaranteed return.

The following table gives the guaranteed standard return and the net operating income actually earned during the last six months of government operation, as reported by the Interstate Commerce Commission, shows how rapidly the deficit was increasing during this period:

	Guaranteed standard return	Net operating income, 1919-1920
September	$91,273,000	$77,763,000
October	94,333,000	76,397,000
November	83,536,000	21,960,000
December	73,282,000	12,780,000
January	56,600,000	14,000,000
February	47,900,000	*12,900,000
	$446,924,000	$190,000,000
	190,000,000	
Six months' deficit	$256,924,000	

*Operating deficit.

In the months of July and August, 1919, the railways earned a little more than the guaranteed standard return, and it has been claimed that this showed what, under normal conditions, they could do under government operation. It will be noted, however, that they began to incur deficits again in September and October, when the so-called "normal" conditions still continued, for the coal strike did not come until November. Furthermore, in spite of the coal strike, which began in November and ended in December, the gross earnings of the railways in the six months September to February, inclusive were $2,775,000,000, or almost $165,000,000 more than they ever were before in any corresponding six months, and yet the net operating income was almost $257,000,000 less than the amount required to pay the guaranteed standard return for that period.

Just how anybody can draw from facts such as these the conclusion that under government operation only a small advance in rates would have been necessary to stop the incurring of a deficit we are unable to comprehend. They seem a complete vindication of the contention the *Railway Age* repeatedly has made that as large an advance in rates would have been necessary under government operation to stop the incurring of a deficit as will be necessary under private operation to secure to the railway companies the net return provided for in the Transportation Act.

Whether the increase in the operating expenses under government operation was reasonable or not is beside the question. The fact is, that an enormous increase of expenses did occur, and that under either government or private operation it would have been impossible, without an advance of 25 or 30 per cent in rates, to make the railways self supporting.

Delaware and Hudson

IN ALL THE DISCUSSION before the two committees of Congress preceding the drafting and passage of the Transportation Act, railway credit emerged as one of the fundamental problems involved in any practical plan for the future development of the American transportation system. Comparatively few railroad men are called upon to deal directly with the financing of their properties. The American public generally took slight interest in railroad financial problems until the first rate advance case in 1910, in which the argument of the railroads for advanced rates rested on their need for an adequate return on the capital invested in the properties. Prior to the war so large a part of the capital needed for American railroads was furnished on the one hand by great financial institutions like the savings banks and insurance companies, and on the other by European investors, that the comparatively small group of individual investors who relied on their own judgement in buying railroad securities were looked upon as insiders with special knowledge.

The war, the sale of Liberty Bonds, high earnings, and now the high price in money of all commodities has led to a very general discussion of economic questions including the credit position of the railroads. The Transportation Act may or may not have laid the foundation for a future working out of plans by which maturing railroad securities may be refinanced, money provided for additions and betterments, more cars, heavier locomotives and more adequate facilities generally and other railroad extension.

One thing may be said with assurance, if the financial necessities of the railroads are to be met successfully a broader general understanding of the problem, unclouded by prejudice, must accompany the interpretation and working out of the Transportation Act.

L. F. Loree, president of the Delaware & Hudson, is one of the most profound students of railroad economics and more especially of the financial problems involved therein. At the outbreak of the European war Mr. Loree made a survey of the conditions in Europe in regard to the holdings of American railroad securities. He followed up the return of these securities to America and has probably as intimate a knowledge of the capital requirements of the railroads and the sources from which new capital may be had, and the conditions under which it may become available, as any banker, railroad man, or economist either in this country or abroad. In the annual report of the Delaware & Hudson for 1920 which has just been made public, Mr. Loree discusses at some length, but in a nontechnical way, present general economic conditions and the effect that they have on the financial necessities of the railroads.

The showing made by the Delaware & Hudson in the operation of its railroad in 1919 may be passed over without extended comment. It is not indicative of the earning power of the property under private operation. The rental

from the government which amounted to $7,415,000, together with other corporate income totaled in all $10,883,000 and after the payment of interest, taxes, etc., there was $4,605,000 net available for dividends which was at the rate of 10.83 per cent on the company's outstanding $42,503,000 stock. Operation of the railroad, however, by the government yielded but a little over $3,000,000 before the payment of taxes. The total tonnage of freight moved one mile over the Delaware & Hudson in 1919 was 3,531,000,000. This was 13.06 per cent less than in 1918 and 10.69 per cent less than in 1917. Mr. Loree sums up the situation by saying, "Diversion of traffic from your lines by reason of the orders and policy of the Railroad Administration continued throughout the year."

During the period of federal control the company was forced to accept 1,000 55-ton hopper cars and 500 50-ton box cars for which it will have to pay between $3,913,000 and $4,366,000. The board of directors passed a resolution accepting these cars only under protest and pointing out that in the opinion of the company they were not necessary to the proper conduct of the company's business.

On the other hand portions of the program for improvement of the road year by year were interrupted with a consequent loss to the company in interest on uncompleted work and a loss to earning power now that the roads are under private operation, which will continue until the program can be caught up with. This loss, after September 1, 1920, will fall not on the government, but on the private corporation.

These are things, however, which, while they may be unjust, are of temporary importance. The Delaware & Hudson is one of the oldest railroad companies in the United States. Its credit when the government took it over was very high. The fact that the assets of the Delaware & Hudson Company included not only the railroad but also extensive coal mines gives it, as a corporation, a far better position financially than most railroad corporations. It is not, therefore, the particular case of the Delaware & Hudson which is most interesting in Mr. Loree's discussion of present conditions but rather his analysis of general economic conditions. He does not confine himself to railroad financial problems alone but treats them as part of the business conditions which affect all of us. He finds that the chief domestic obstacles to the resumption of progress are "(1) The extremely low purchasing power of money; (2) continued absorption of liquid capital by the federal government and (3) excessive and badly adjusted taxation." He shows in a particularly clear and easily understood way the relations between taxation and the low purchasing power of money, and the financial stringency which all American business faces. It is particularly interesting to note that Mr. Loree does not ascribe all of the drop in the purchasing power of the dollar to inflation and increase of money in the country. His argument is so closely thought out and so concisely put that it should be read as he himself puts it in his report to Delaware & Hudson stockholders, which is published elsewhere in this issue.

JUDGMENTS against the Lehigh Valley Railroad aggregating $750,000, contained in court decisions on suits connected with the Black Tom disaster were affirmed by the Supreme Court of the United States on April 26. These suits were for damages due to the explosion of war munitions in the railroad company's yard at Black Tom, New York harbor, in July, 1916. The railroad contested the claims on the ground that the responsibility for the explosion rested on others. Thirteen different suits were appealed to the Supreme Court. Large numbers of other suits, for sums aggregating millions of dollars, are still pending in the courts in New Jersey and New York.

Letters to the Editor

Interest in N. R. A. A. Exhibit

NEW YORK CITY.

TO THE EDITOR:

I hope you can find space in your columns for a word of appreciation concerning the interest shown by the railroad men in the exhibits at the Chicago display of the National Railway Appliances Association. Never before have I seen such intense, consistent and intelligent interest in the exhibits. I speak for myself and unofficially for others when I say that the way the roadway officers and track men went after new things and new ideas in this case means a lot in the way of improvement of track to decrease railroad operating expense.

It is my hope that the higher officers of the railroads will be informed of the increased interest on the part of their track people. I also hope that the track people will be earnestly and cordially encouraged. I have attended conventions for many years, but never before have I seen such interest.

AN EXHIBITOR.

Railroads Oppose Compulsory Metric Legislation

INDIANAPOLIS, IND.

TO THE EDITOR:

In view of the efforts now being made at Washington to persuade Congress to enact a law providing for the "Compulsory Introduction of the Metric System" the following reasons suggest themselves as to why such action would place an unnecessary burden on the railroads and incidentally on the people at large, for the reason that in the last resort the people must pay for all of these excessive and unnecessary expenditures:

1. The railroads of the country have spent several million dollars preparing plans in compliance with Valuation Orders of the Interstate Commerce Commission. These plans, as well as other plans, both of right-of-way, structures, standards, etc., will become, in effect, obsolete and their replacement would eventually be necessary on the metric system. This would entail a very large expenditure.

2. The enactment of this law would cause all freight tariffs to be revised and readjusted from their present pound and ton basis. This would not only involve a very large expense but great confusion and the loss in connection therewith would be inestimable.

3. All passenger tariffs would also have to be revised and changed from their mileage basis of calculation.

4. Platform, wagon and track scales would be of no value as they now exist until they were remodelled and changed to meet the requirements of the new measure. This would result in throwing away and scrapping a large amount of valuable railroad property.

5. In addition to the above would be the expense incident to educating railroad employees to adapt themselves to the new system and the resultant confusion in connection therewith.

6. It seems to me we ought to let well enough alone. The present system is taking care of all our requirements and there is no sound reason for any change. I sincerely hope that no such drastic proposition will get any serious consideration from Congress.

B. A. WORTHINGTON,
President, Cincinnati, Indianapolis & Western.

Relation of Railroad Terminals to City Plan

Intimate Connection Between Urban Development and Transportation Facilities Emphasized.

THAT THE RAILWAY TERMINALS bear an important relation to city planning developments is indicated by the fact that an entire session of the Twelfth National Conference on City Planning, which was held at Cincinnati, Ohio, on April 19-22 inclusive, was devoted to this phase of the problem. At this session, which was held on Tuesday morning, April 20, a report was presented by the Railroad Terminal Committee and Ward Baldwin, chief engineer for the Board of Trustees of the Cincinnati Southern, described the two terminal plans now under consideration at Cincinnati. These reports are abstracted below.

Report of Railroads Terminal Committee

The report of this committee, consisting of Nelson P. Lewis, chief engineer, Board of Estimate and Apportionment, New York City, chairman; Col. William J. Wilgus, consulting engineer, New York City; E. P. Goodrich, consulting engineer, New York City, and C. H. Cheney, city planning engineer, Portland, Ore., was presented by the chairman. It consisted principally of a discussion prepared by Colonel Wilgus and another prepared by Mr. Cheney and J. P. Newell.

The Railroad Terminal Problem
In Its Relation to City Planning

By William J. Wilgus.

The railroad terminal problem may be said to embrace three separate and distinct phases; that having to do with passenger and freight traffic destined for local distribution; that dealing with direct movements to and from local industries and other facilities having their own side tracks; and that having to do with the interchange of traffic destined for points beyond.

In discussing the first of these phases, which has to do with the local distribution of freight and passenger traffic, it should be borne in mind that the railroad terminal is not such in the sense that the movement of either freight or passengers there terminates. The terminal is merely a step in the journey between the point of origin and that of final destination, where the passengers or freight are transferred from one means of transportation to another. Stated differently, the terminal is to be considered as a means of transition from one transportation agency to another. It is a terminal only for the vehicles employed in effecting a portion of the journey of their contents. The passenger, on arrival at the terminal, alights from his train and continues therefrom by vehicle or on foot to his residence or place of business; and the article of freight is transferred from the freight car to the truck that is to effect the final delivery.

In the early stages of the growth of the American city there were no rapid transit facilities to convey the passenger quickly and cheaply from the terminal to his home or place of business, and land for terminal purposes was comparatively cheap. Therefore the station was placed as closely as possible to the business center of the community. Similarly, the comparative cheapness of property, coupled with the slowness and limited radius of action of horse-drawn trucks, led to the placing of local freight terminals adjacent to the business center.

In the course of time conditions in these particulars have changed radically. Our cities have shown a remarkable increase in population, the property occupied for railroad terminals has become extremely valuable and is in urgent demand for civic expansion; streets have become congested with pedestrians and vehicles; rapid transit facilities for annihilating space have been installed in most of our large cities, and the slow-going horse-drawn vehicle has been largely replaced by the high-capacity fast moving motor truck.

In considering the solution of any given railroad problem it is therefore necessary to weigh carefully the arguments for and against the location of passenger and freight terminals as near as possible to the business center. The advantages are convenience to that portion of the traveling public which can most easily complete its journey on foot; and, in the case of freight, a slight saving in time and expense because of shortness of haul by motor truck between the freight station and the point of origin or destination. The disadvantages are the maintaining for railroad purposes in the midst of the city, of vast wastes which block orderly civic expansion and contribute largely to the congestion that increasingly is becoming such a fruitful source of delay, inconvenience and expense to the public.

If, as in the case of the Grand Central Terminal at New York, the railroad approaches and station can be placed beneath the surface so that streets may be carried overhead without interference with the city's normal development, and if it is practicable to move trains by electricity so as to do away with nuisances incident to the use of steam locomotives

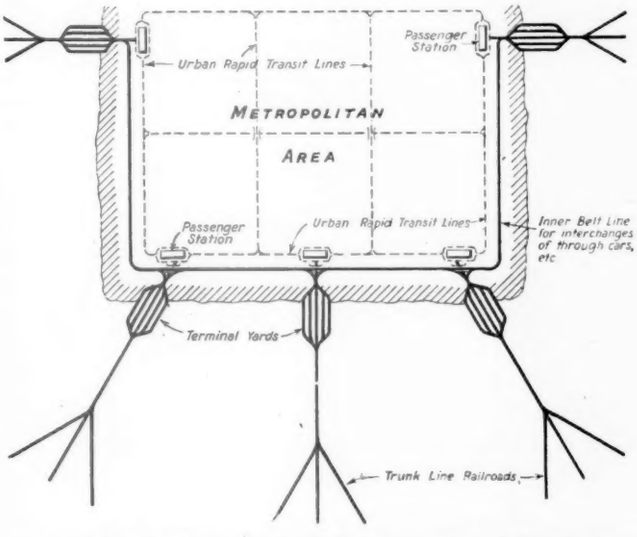


Fig. 1—Sketch Showing Possible Connection Between Terminals Comparatively Remote

and thereby permit the utilization of valuable "aerial rights" for revenue producing purposes, the better solution may be the placing of the terminal as near as possible to the business center. If, however, the underground treatment is impracticable and if the number of railroad lines and the shape of the city are such as to make undesirable this manner of solution, the course to pursue would be the banishment of the passenger terminals from the heart of the city to points sufficiently removed therefrom to afford ample space at moderate cost for the stations and yards, with contiguous parks, all

planned in such manner as not unduly to interfere with future city growth.

An arrangement whereby two or more passenger terminals, thus located at points comparatively remote from the business center, may be inter-connected and also placed in close touch with all parts of the city by means of urban rapid transit facilities, is illustrated in the accompanying sketch (Fig. 1).

In the case of local freight terminals the advantages of having them well removed from the business center would seem to far outweigh the small advantages of a shortened haul for the motor truck. The larger portion of the expense of freight distribution lies in delays to trucks awaiting opportunities for loading and unloading at the terminals, due to restricted facilities and congested surroundings. This situation is constantly becoming worse, and is contributing in a large degree to the high cost of living in great cities. Instead of continuing the journey of the railroad car as close as possible to the business center, with the attendant high cost of property and of operation, coupled with congestion and general inefficiency, for the sole purpose of shortening the haul by motor truck, it would be better to shorten the railroad haul somewhat, lengthen the haul of the motor truck, and place the points of interchange where cheap lands abound.

In communities where the streets are broad and not overcrowded, it would be possible to continue freight distribution by means of motor trucks, but where surface congestion makes this course undesirable small car freight subways, as illustrated in the accompanying sketch (Fig. 2) should be created, in which the freight would be moved by electrically-operated multiple unit trains of cars having a capacity of say ten tons,

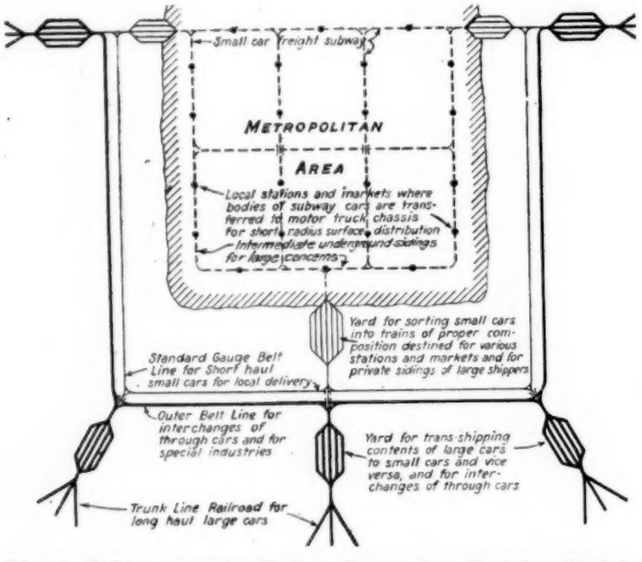

Small car freight subway
METROPOLITAN
AREA
Local stations and markets where bodies of subway cars are transferred to motor truck chassis for short radius surface distribution
Intermediate underground sidings for large concerns
Yard for sorting small cars into trains of proper composition destined for various stations and markets and for private sidings of large shippers
Standard Gauge Belt Line for short haul small cars for local delivery
Outer Belt Line for interchanges of through cars and for special industries
Yard for trans-shipping contents of large cars to small cars and vice versa, and for interchanges of through cars
Trunk Line Railroad for long haul large cars

Fig. 2—Subway for Small Cars Connecting Outlying Freight Cars

from the trans-shipping points on the various railroad lines, through "gridiron" sorting yards, and thence beneath the city streets to a multiplicity of points throughout the city where mechanical devices would transfer the removable car bodies from the subway vehicles to the chassis of motor trucks for short-radius surface distribution, in a manner similar to that now in vogue at the Norwood substation of the Baltimore & Ohio in Cincinnati.

This arrangement, offering as it does all the advantages of the American type large-capacity car for long hauls and of the European type of car of moderate capacity for short hauls in cramped quarters, would mean diffusion instead of concentration of freight deliveries, and in so doing would solve the market problem and enormously reduce terminal costs and delays through centralized control and the employment of labor saving devices.

There still remain to be considered the phases of the railroad problem which have to do with the placing of cars on the side tracks of private industries and waterfront facilities at or near the business center; and also means of interchange between carriers for the kind of traffic that is destined for points beyond. These needs as a rule are best met by means of belt lines, an inner one for local interchanges and an outer one for the bulk of the traffic that should be excluded from the congested regions of the city. The majority of the large cities of the country are already served with inner belt lines, and many of them also have outer ones. Both are highly desirable, not only from the standpoint of interchange of passenger and freight equipment, but also for the proper development of large industrial enterprises and for the unrestricted and prompt movement of military trains in time of war. The latter need was strongly proved at Paris during the World War when it became necessary to construct missing links in the outer belt line so that troop and supply trains from different directions could be thrown to the aid of the Allied armies in stemming the advance of the enemy. An example of the evil effects that flow from the lack of adequate inner belt lines and of a comprehensive outer belt line, is that of Greater New York, where the absence of these facilities is a growing menace to its commercial supremacy and to its safety in time of war. In fact, the experiences of the World War demonstrated that the latter defect bore heavily, not alone on the local community, but on the nation at large, through gross delays and confusion in the embarkation of troops and supplies.

Summarizing, the railroad problem in its relation to city planning should be treated in the light of the situation as it exists in each community, due weight being given to the following considerations:

Passenger and freight terminals for serving the community should be so located, in liaison with suitable lines of urban distribution, that the business and residential sections will be given ample opportunity for healthy expansion, that congestion will be avoided on the city streets, that full opportunity will be given for the aesthetic development of the community, and that delays and costs to the public will be reduced to the minimum.

Inner belt lines should be provided for the convenient placing of cars on private sidings of industries located where labor is readily accessible, and on tracks serving the local water front; and

Outer belt lines should be created for the speedy and economical interchange of through freight and for access to water terminals lying outside of the city proper.

It should be added that of course grade crossings, in the interest of both safety and economy, should be avoided to the fullest extent.

Principles of Correlation of Railroad Terminals with The City Plan

By Chas. H. Cheney and J. P. Newell

1. Unified control and operation of all standard railroad lines within the limits of any city, is essential both to the requirements of modern business and to the convenience of the public. It should be brought about with as little delay as possible, at the same time providing opportunities for expansion, both of trackage and terminals, in connection with a well considered plan of city development. Means should be found and taken for persuading or compelling all railroads entering the city to connect up with such a unified system at the city limits. The entire question of railroad service should be considered as a whole, not with relation to one system or one part of the city only.

2. The present wasteful and needless duplication of lines

and terminals inside of city limits cannot be permitted to continue. Many cities can show millions of dollars spent in unnecessary duplication of passenger stations when the same sums expended in added industrial lines would have increased both the business of the carriers and the prosperity of the city. This is a useless drain on the railroads, resulting in additional cost of operation, for which the public pays. It is a needless inconvenience to the public which can be remedied at comparatively small cost by proper co-operation in planning by both the city and the railroads. Voluntary action on the part of one road is not to be expected and generally impracticable. The city, with the aid of the state or National Government, holds an advantageous position to undertake bringing the railroads together for such intra-city unification.

3. All shippers within the city should be free from dependence on one road for cars. In some cities shippers now have to maintain needless additional warehouses on a second line in order to insure prompt delivery of cars on the first line. This is a wasteful expense which must be added to the cost of shipping and doing business, particularly where a perishable product is involved.

4. All spurs and industrial tracks within the city limits should be "common user" tracks, served by a belt line connected with all main lines entering the city, a fair pro rata return being made to the original owner of each line for such use.

5. Municipal ownership of intra-city lines is probably not necessary, provided there is unified control. Expansion of existing terminal companies to include all lines within city limits is probably the most economical, quickest and easiest method of accomplishing unification in most cities. New trunk lines should be allowed to hook on to the city terminal lines at the city limits, at any time in the future. This would provide for competitive lines through the country without cutting the city into further pie-shaped sections, or causing further blighted areas to property within a block or two of each side of the railroad right of way, through a city, as at present.

6. Provision of complete modern business facilities is essential to all industries. Railroad service, while important, is not the only one of these facilities necessary. Protected industrial districts or zones appropriately and conveniently situated, free from hampering residential requirements, with wide heavy hauling pavements, high pressure fire protection, extra large sewers for industrial wastes, etc., as well as unlimited spur tracks, are necessary in any city of consequence, and many of the progressive cities of the country have already established such zones. The fullest co-operation between the city and the railroads is necessary to make the facilities in these zones most useful in the development of business. Once such zones are established both railroads and shippers can feel safe in concentrating large investments for permanent ultimate service, not otherwise justified.

7. One of the greatest opportunities for railroads to cut down expenses and freight rates is by simplification of terminals. On most of the big roads it costs as much to get a car of freight out of the city limits as it does to haul it 250 miles or more on the main line. Some roads report as much as 35 per cent. of their total freight cost in handling at terminals (from reports of O. W. R. & N. to Oregon Public Service Commission). This is by far the biggest single item to the railroads in their cost of doing business. A small saving, therefore, in terminal handling should effect a considerable amount of saving in freight cost and should be welcomed by railroads and shippers alike.

8. Whatever the origin or destination, a merchant or manufacturer should be able to receive and ship at the freight station which entails the shortest team haul.

9. Adequate expanded classification and freight yards must be provided in every city as part of its future plan and as an adjunct of industrial development. These yards should have long areas uninterrupted by grade crossings and preferably located at one side of or on the outskirts of the city, away from the probable expansion of business and main street traffic lines. Main railroad lines should be diverted around the city and outside the city limits, wherever practicable, so that through freight and other through trains need not pass through the congested parts of the city. In the light of the development of modern street transit, consideration should also be given to the possible advantages of relocating main stations away from the congested districts.

10. In cities which have water-borne commerce, whether coast or inland ports, rail and water terminals should be considered as a single rather than as separate problems; co-ordination of facilities for both methods of transportation should be insisted upon in the interest of the public and of the carriers themselves.

11. The relation of the railroad to the street system of the city should be carefully worked out. The value of the railroad to the prosperity and the very life of the city should be recognized. Wide heavy hauling pavements to freight terminals, docks, and the industrial zones are equally essential and form a natural and important complement to the greatest use of railroad facilities. Direct and amply wide traffic thoroughfares should lead to all principal passenger and freight stations, before which large open spaces are necessary for the convenient arrival and departure of large numbers of pedestrians, vehicles, and street cars.

12. The elimination of grade crossings on both steam and electric rapid transit lines is essential to public safety and convenience, to prevent the interruption of traffic and for the proper conduct of business. The problem of grade crossing eliminations should be studied in the most comprehensive way and not in a piece-meal fashion, even though the execution of the work is to be carried out gradually.

13. The fullest co-operation should be given to cities by the railroads in planting and improving the appearance of borders of rights of way, yards, bridges, viaducts, stations and terminals within the city limits. Much of the present damage to adjacent property values and rentals can be done away with in these matters, at reasonably small expense, by closer working together of railroad officials, park boards and other city officers.

The Cincinnati Terminal Problem

Ward Baldwin, chief engineer for the Board of Tustees of the Cincinnati Southern, outlined in detail the problem confronting the roads of Cincinnati in developing their terminals and traced the history of the various projects and plans which have been advanced for its solution.

The peculiar topography of Cincinnati, a valley hemmed in by hills unbroken on the entire north side, has made the problem of terminal facilities for the railroads so difficult, and has interposed such a multitude of obstacles, the overcoming of which was attended by such great expense, that the growth of the railroad terminals has been unduly restricted and has fallen far short of the demands of the traffic to be handled. For at least three quarters of a century efforts have been made by the railroads and shipping interests to evolve a generally acceptable plan for a system of terminals to supersede the uncorrelated haphazard arrangements that immediate necessities have from time to time compelled the several transportation companies to provide for the single purpose of meeting their individual emergency demands. The futility of these efforts has been due mainly to two causes, the lack of sufficient money, and the non-existence of a bureau such as the City Planning Commission we now have, vested with authority and charged with the duty of preparing a harmonious plan for the city to grow up to in respect to transportation as well as all other civic needs.

A number of plans were advanced for the location of

passenger terminals prior to 1905. In that year practically all railroads that now use the Central Union passenger depot reached an agreement to build and use jointly a union passenger terminal to be located above high water at and west of Fourth and John streets. Detail plans were prepared by the railroads, and construction was started by building the "Interterminal" elevated single track that connects the C. & O. bridge with the C. H. & D. at Fifth and Baymiller streets. The railroads, however, were obliged at that time to make large expenditures to repair the damages caused by abnormal floods, and the depletion of their resources thereby caused compelled a suspension of construction work. The repressive policy of government control has since kept the railroads too impoverished to resume work on these or any other terminal plans.

The extension of the freight terminals has been the subject of similar investigations in practically all of which a belt railway has been the underlying idea. In 1889 H. M. Lane, president of the Lane & Bodley Company, published in the Cincinnati Enquirer an able discussion of "Cincinnati's Present and Future as a Manufacturing City," illustrated by a map that made the disclosure that the tracks of several of the railroads were already so connected as to constitute a line fulfilling all the requirements of a "Belt Road," and that the only step necessary to relieve freight traffic from the congestion and excessive cost would be to operate them as one line. This belt line has formed the frame work for all the plans for the improvement of the terminals that have been advanced since that time, but the one remaining condition to be fulfilled in order to actually create a belt line, namely to *use* the designated tracks as a belt, was not complied with until the government assumed control of the railroads in 1917, and thereupon instituted the plan of operating these tracks as a belt. This was done with such benefit to our transportation system that this plan of operation has been continued by the railroads since the return of the roads to their owners.

In 1904 all the roads entering Cincinnati joined in a preparation of a comprehensive plan for the relief of congestion of the local freight terminals, and in 1918, at the request of the Railroad Administration, they undertook to prepare a comprehensive plan for the improvement of the freight terminals with a view not only to relieve local congestion but also to provide for the free movement of through traffic.

This committee submitted a plan for a belt line which substantially coincided with the 1904 report. It also recommended the building of a union freight station on the site of the present Central Union passenger station and of two smaller freight stations at outlying points; and suggested the inauguration of store door delivery for freight and the operation of all terminals by a terminal company; also the building of a union passenger terminal in a location not specified. The trustees of the Cincinnati Southern also recommended to the government at the same time an alternative plan similar to the one just referred to, except that the southern part of the belt line was placed in Cincinnati instead of on the Kentucky side of the river. The consideration of these plans was, however, abandoned by the government upon the signing of the armistice.

In an effort to solve the passenger terminal problem the trustees of the Cincinnati Southern have secured from the city government, subject to approval by popular vote, authority to issue $20,000,000 of city bonds to finance the building of a union passenger terminal. Agreement of the several roads as to the location of such a terminal and on a plan for payment of rentals to meet the maintenance, interest and sinking fund charges, all subject to approval by referendum vote, are the only necessary preliminaries to the construction of this terminal.

Activities of the American Railway Express Company

By George C. Taylor, President of the Company

THE EXPRESS BUSINESS started eighty years ago, and gradually grew with the development of the country. Up to 1914, the surviving companies, generally speaking, prospered by contracting for their railroad transportation as best they could and by purchasing all commodities at prevailing prices. In 1913, after an exhaustive investigation and study, the Interstate Commerce Commission issued an entirely new rate structure, founded upon an entirely new and greatly reduced basis. Almost simultaneously therewith, the parcel post became a competitor, and the situation looked hopeless. Three companies retired from business. The remaining seven decided to make the best of it and give it a fair trial. We could not, however, expand our facilities by capital outlay by reason of the uncertainty, and some of our facilities were thus outgrown. The next year, 1914, proved a bad year, the companies, as a whole, failing to meet operating expenses; but by vigorous economies the years 1915 and 1916 yielded a fair profit and the service was dependable and generally good.

In 1917, however, by reason mainly of the effect of the European war, heavy increases in wages and costs of everything used in the conduct of the business, and by reason, further, of the let-up in efficiency of labor, our operation disclosed a failure to meet operating expenses, the actual deficit from transportation activities running into a sum well over $2,000,000. Even now this is being added to by the settlement of old loss and damage claims and personal injury suits, most of which, I am pleased to say, are now behind us.

With the taking over of the railroads in December, 1917, we were not included. We continued our operations, however, with a determination to perform the express service so essential to the commerce of the country, as best we could, and to work out our wholly new situation; and this determination was the more pronounced by reason of the railroads' fast freight service being badly crippled. Hundreds of cars were necessarily and properly taken from regular express service for troop-train movement, and we had to use box cars, neither heated nor lighted, nor in any way suitable. Their use resulted in a very heavy loss and damage account, running into millions of dollars; but considering the many necessary freight embargoes and other abnormal conditions, it was better than to give up and furnish no service at all.

Our burdens were again increased by reason of the large amount of wagon service we were called upon to render in connection with freight normally handled by the shippers themselves, and for which we had neither the facilities nor men at our disposal. With the general disruption of the transportation service, the express company was oftentimes the only avenue through which industries were able to secure raw material. I recall carloads of brick and lumber; carloads of automobile parts to be employed in the manufacture of vehicles for the army; train-loads of anchor chains for the government; train-loads of ammunition to go to Europe for war purposes, and many other burdens which we assumed as best we could. We felt it our duty to do so.

When the director general declined to recognize our operating contracts, he did say he would deal with us as *one* company and enter into an agreement with that one company to conduct the express business, as his agent on all federal-controlled lines.

After constant negotiations for nearly six months, there was formed on June 22, 1918, the American Railway Ex-

*An address before the Merchants' Association of New York City on April 14, 1920.—Abridged.

press Company, which was not a merger but an entirely new corporation, to which each of the four old companies—the Adams, American, Southern and Wells-Fargo, sold their tangible property used in express operations, at its depreciated book value, and took stock therefor; and in addition, subscribed three millions in cash as working capital.

Birth of the New Company

The inventory of this property, real and personal, was verified and certified by the government. There is no "water" or good-will in the capital of this company and neither was there put into it the outside financial and foreign activities of the old companies. For their former transportation properties and activities they were simply given stock at par as a stockholder only, in the new concern.

Effective July 1, 1918, with a contract with the director general, we began the operation of the new company, necessarily helping so far as we could, in the liquidation of the transportation affairs of the old companies as they lay all over the country in some 35,000 offices. This was a burden, but we felt it to be a duty we owed to the public and the old companies, the latter paying the new company, however, the expense thereof.

Two of the companies in February, 1919, decided to handle their own liquidation items. The other two are still working through this company, and their unadjusted matters are reduced to a very nominal amount, all of which we hope to close out before the end of June.

The new company, by reason of constantly increasing wages and cost of materials has never been able to meet its expenses.

Its deficit to the end of 1918 was over nine millions of dollars, and for 1919 was over twenty-four millions. We were never guaranteed, as the railways were, a standard return, but we were guaranteed against deficit.

Thus we have operated as best we could for 22 months, with absolutely no return to the owners or stockholders upon thirty-five million dollars actual value of real estate and plant, of which three million was new cash put up by the stockholders on July 1, 1918.

We feel, therefore, that we have at least tried to carry our share of the war burden, and we still have confidence and nerve and energy left, to stare the future squarely in the face, and if allowed a fair fighting chance to build from the wreck an efficient and dependable express service, so necessary, we believe, for the well-being of our commerce and industry.

As I look into the future, I cannot see the best and cheapest express service come from a restoration of the several old companies, nor the formation of several new ones. It would mean again, adding to the rates, enough more to pay for duplicate services in the elimination of which this company has saved many millions of dollars; and it would mean a less efficient express service for reasons which I will briefly mention.

We realize our service has not been up to the standard and is not now, and it will take time to make it so; probably at least two years to reach anything like a normal situation.

We are dependent upon the railroads for our cars and transportation. There is not enough express car equipment in existence by some 2,000 cars, to properly handle the business of today. The railroads are not to blame for this, and neither are we. Their present situation is but the outgrowth of conditions over which they had no control. No railroad could be blamed for not being willing to spend vast sums in new equipment and facilities, and neither could this company, with the uncertain future up to the end of Federal control, money could not have been obtained.

Our transportation contract for all lines formerly under Federal control expired automatically February 29th, when the roads went back to private management.

Under the Transportation Act, we are in process of making contracts with the several hundred large and small roads, over 90 per cent of which have already been negotiated; but under the law these are only made for the period to August 31, 1920. Until that date, we are protected against deficit. After that, if we exist at all, we must have higher rates to meet our higher wages and costs. Our application for such rates is before the Interstate Commerce Commission.

We are also permitted, under the law, to apply to the Interstate Commerce Commission for legalization of this new company. Our prayer for that is now before that body. The railroads are mindful of our car and terminal requirements, and I am informed will shortly place orders for at least a portion of such cars.

We need equipment and buildings, and are ready, provided we can be assured some reasonable tenure of existence, to endeavor to interest new capital in such facilities; but we cannot do this unless the public is willing for us to continue, and not until we have closed proper contracts with the railroads and secured increased rates to enable us to have an assurance of a fair return for the use of our organization and capital invested. All of our efforts are now centered toward a consummation of all these matters, which, at the best, will take time and patience.

As one express company operating over all lines, we can give a better service by the use of the most direct routes.

We can avoid much duplicate service and expense, which in the end must be borne by the public.

We can give to the shipper only one company to look to and not a divided responsibility and resultant delay in case of loss.

We can avoid all circuitous routing.

We can avoid rehandling by maintaining more through-car routes.

We can avoid delays and damage by rehandling at junction points in transfer to or from other companies as formerly, and by use of all the rail mileage, can fairly, we believe, compete with the parcel post. We are glad to have this competitor, and with the competition of restored normal freight service and the competition of the fast growing trucking service, we certainly can have no monopoly.

Further, we are regulated as to rates, practices and service by the Interstate Commerce Commission and the commissions of the several 48 states.

We have a splendid organization of over 135,000 people; 35,000 offices; our annual turnover in charges is approximately $300,000,000; handling on the average 1,000,000 shipments a day.

We have all been passing and are still passing through perhaps the most trying period in the history of the world. To give this express organization of 135,000 people, of which I am proud to be one, a fighting chance to give you an efficient, co-operative and dependable fast transportation service, is all we are seeking to accomplish, and the results of our effort will, in my judgment, work to our mutual benefit.

THE MERCHANTS' LIMITED EXPRESS of the New York, New Haven & Hartford, the afternoon five-hour train between New York and Boston, was at no time omitted because of the strike. This statement, contrary to reports printed in the *Railway Age* of April 16, we have from an officer of the road. This and the Knickerbocker Limited, the other all-parlor-car train, were kept in service without interruption. Nor were sleeping-car or dining-car services cancelled. Statements printed in numerous newspapers to the effect that sleeping cars were not running or that the through night trains had been discontinued entirely are declared to have been due to acceptance by reporters of misinformation given to them by interested persons, for purposes of their own.

American Welding Society Holds First Annual Meeting

THE AMERICAN WELDING SOCIETY held its first annual convention in the Engineering Societies Building, 33 West 39th street, New York, on Thursday, April 22. The morning session was devoted to society business and announcement was made of the election of officers. J. H. Deppler was elected president, J. W. Owens vice-president for two years, and D. B. Rushmore vice-president for one year.

Comfort A. Adams, chairman of the American Bureau of Welding, spoke briefly on the subject of welded joints for pressure vessels. A point of particular interest was brought out in this connection concerning the use of different kinds of welding machines. Mr. Adams showed that within the limits of arc length consistent with good practice in electric welding, it made no difference whether the machine used was a constant current, constant heat or constant unit heat machine. The objective of the bureau's activities will be to determine how a good weld can be assured. Methods will be sought for testing the quality of a weld after it is made and for determining the best way of eliminating locked up stresses in long welds. At present the greatest hope lies in controlling the conditions under which the work is done. This will greatly reduce the amount of nitrogen in the weld. Heat treatment is beneficial in that it tends to break up the combined nitrogen.

The afternoon session was concluded by an announcement that a number of manufacturing companies have offered to assist the bureau with its research work. Much of this work is in a partially finished condition.

Speed of Metal Arc Welding

At the evening session three papers were presented and discussed. The first one presented was "The Speed of Metal Arc Welding," by William Spraragen of the department of electrical engineering of the University of Washington. In substance, the more important portions of the paper are covered in the following statements:

The range of metal arc welding, or rather the range of application of metal arc welding, is very large. At one time it was considered necessary to scrap metal parts that were worn away. Autogenous welding is responsible for the discontinuance of this practice to a large extent. Without a doubt the welding operator is a most important factor in successful arc welding and, of course, the more skillful the operator the more and the better work will be turned out. It is very desirable to be able to compute the rate at which arc welding may be accomplished, but the complexity of the different elements entering into it are such that it is very difficult to calculate the time required to produce certain kinds of joints. For inside work 1.8 lb. of metal deposited per hour is a reasonable estimate, but when the work is performed outdoors there appears to be a reduction in the amount of metal deposited, so that the average appears to be 1.2 lb. of metal deposited per hour for outdoor work. This reduction in the amount of metal deposited is probably due to the cooling action of the air.

With reference to the type of welding apparatus used, whether it be alternating current apparatus or direct current apparatus, it is estimated that where first-class welding operators are employed there is no difference in the speed between the two kinds of equipment.

In a few words of explanation the retiring president, Comfort A. Adams, explained that the paper on speed of arc welding was based upon conclusions arrived at by tests made by the General Electric Company in welding up some 10½ tons of welding material. This work was done just prior to the signing of the armistice, and while the work had been cut up into coupons, ready for testing, the tests have not been made up to the present time.

Automatic Arc Welding

The second subject for the evening was "Automatic Arc Welding Machines" by H. L. Unland of the Power & Mining Engineering Department of the General Electric Company.

Mr. Unland stated that the automatic control of arc welding was not new. He said that the automatic arc welding machine had been developed for the reason that it was desirable in turning out large quantities of duplicate parts to make this operation as nearly mechanical as possible. As a precedent he mentioned that years ago the General Electric Company had developed a similar machine for a gas-cutting process which was used in the making of small gears, wheels, etc. Operators, cutting by hand, frequently ran over the line; these factors influenced the company to take up the question of mechanical feed, and a satisfactory cutting torch was eventually produced. At that time it was found that the gas consumption was reduced to one-third and that the speed was increased four or five times over the time required for hand work. The development of the automatic arc welding machine is merely an extension of the same principles into another field, and for sections that are being turned out continuously the mechanical feed is the proper thing to use. Mr. Unland described the General Electric's machine, and with the aid of numerous stereopticon slides explained very carefully the operation of the various circuits used in the control of the welding wire to the work.

Gas Cutting.

The third paper on "Recent Development in Gas Cutting" by Stuart Plumley of the Davis Bournonville Company was not read, but Mr. Plumley spoke briefly of the more important developments. The most successful development has been the cutting of cast iron with the gas torch. Cutting cast iron is particularly difficult, because the oxide of iron melts at a higher temperature than the iron itself. The cutting is now accomplished by preheating the oxygen. It is so easy to break cast iron that gas cutting is not often desirable, but it can be used to excellent advantage for such operations as cutting a frozen blast furnace cap.

The discussion brought out the fact that the rigid method was used for welding tanks with the automatic electric welding machine. The statement was made that locked-up stresses were greatly reduced by reason of the fact that the speed of welding was very high. It was further stated that alternating current cannot be adapted successfully to automatic welding, as a sensitive variable speed motor is required for feeding the metal into the arc.

Training of welding operators with the alternating current arc was advocated on the ground that because the alternating current arc had to be held within closer limits, the welders trained to use the alternating arc make better operators than those who receive their initial training with the direct current arc.

THE FOREST PRODUCTS LABORATORY, Madison, Wis., has established a training course in the principles that underlie box and crate construction. The course will start in July and will be given monthly so long as there is a sufficient demand by shippers and others interested in good container construction. The course consists of one week's instruction in boxing and crating under a staff of specialists and will include demonstrations of the necessity of adequate nailing, the relative holding power of different kinds of nails, and the effect of using wet lumber, strapping, including methods of application, etc.

Report of Division of Capital Expenditures

Work Authorized 1918 and 1919, $1,171,131,168, of Which $805,895,738 Actually Done

THE DIVISION OF CAPITAL Expenditures of the Railroad Administration has submitted a report for the year 1919, from which the following is taken:

During the year 1918 the Division of Capital Expenditures specifically authorized for improvements chargeable to capital account of Class I railroads and switching and terminal companies (exclusive of equipment ordered by the Railroad Administration for federal-controlled roads) the cost of which aggregated $906,178,538.

In the stress of war conditions, many projects were started and completed but were not reported in a formal way until 1919, but including those authorized and those not authorized by the Division of Capital Expenditures, there was actually expended during the calendar year 1918 because of shortage of labor and material a total sum hardly more than one-half of the amount authorized, namely, $473,628,013.

The details of these figures will be found in the exhibits attached to this report for the following periods:

Authorizations for year 1918	$906,178,538
Expenditures for 1918	473,628,013
Authorizations for year 1919 (one month estimated)	264,952,630
Estimated expenditures for 12 months, 1919	315,000,000
Authorizations for two years of federal control	1,171,131,163
Expenditures for two years of federal control	788,628,013

The outstanding feature of these detailed statements is that during the two years of federal control the following items involving the heaviest expenditures in roadway and structures in the order given were:

1. Additional yard tracks, sidings, and industry tracks.
2. Shop building, enginehouses, and appurtenances.
3. Additional main tracks.
4. Bridges, trestles, and culverts (renewals).
5. Improvements to existing equipment.
6. Rails and other track material (renewals).
7. Freight and passenger stations, office buildings and other station facilities.
8. Shop machinery and tools.

The signing of the armistice on November 11, 1918, relaxed the strain to some extent, and the conditions which governed the supply of material and labor were almost immediately changed.

While the war was still in progress in August, 1918, the regional directors were called upon to prepare and submit their budgets for 1919 in conformity with the rules laid down by the director general in his General Order No. 12. The cessation of active hostilities materially affected the scope of these plans. It was no longer necessary to anticipate the needs of the carriers for purely war purposes.

By the middle of January, 1919, the movement of men and material overseas had been largely reduced, while, on the other hand, manufacturers had not been able to resume normal production and many of them had practically suspended operations while engaged in making settlements with the government, so that the volume of traffic offering for transportation was substantially reduced.

This situation suggested the propriety of again soliciting the co-operation of the corporate officers in reaching a determination as to additions and betterments for the year 1919.

The adjournment of Congress on March 4 without making any provision or appropriation for the continued development of the railroad facilities created a condition requiring prompt and decisive action.

Without an appropriation it was deemed necessary by the Division of Capital Expenditures to further reduce the proposed budget and to suspend all improvements previously authorized except in such cases where it was necessary to continue work to insure safety, or where the progress had been so far advanced that to stop the work would be much more expensive than to continue it, or except in those cases where the railroad companies were willing to furnish the funds necessary to carry the project to completion without aid from the Railroad Administration.

In connection with new work not previously authorized it was deemed expedient to obtain from the corporate officer of each company a definite statement as to the extent to which said company was willing to finance the cost of the work, either by paying for it outright or by depositing with the United States Railroad Administration securities sufficient in amount to cover the cost.

To this end the federal managers dealing direct with the corporate officers were instructed to afford the said corporate officers full opportunity to review all projects chargeable to capital account, whether in progress or contemplated, and also uncompleted projects brought over from the year 1918.

The appropriation made by Congress in June, 1919, did not materially change this situation because the appropriation was not sufficient to enable the Railroad Administration to settle in full with the railroad companies without at the same time requiring them to pay a large part of their indebtedness for capital expenditures; so that a situation was produced where the Railroad Administration was not itself in a position to furnish large additional amounts of money for improvements and the railroad companies were not in position to finance large additional amounts.

Besides, the period during which extensive plans could be put into effect before the end of the year had passed.

The result was that the addition and betterment projects continued to be limited almost entirely to those involving safety of operation, facilities necessary for handling current volumes of traffic, and completion of those larger items which could not be economically discontinued.

The conditions above explained, together with the opposition of several of the corporations to which equipment had been allocated, made it impracticable to order any locomotives or cars in addition to those which had been ordered in 1918 as a war measure, namely, 1,930 locomotives of 12 different types, estimated to cost approximately $110,000,000, and 100,000 freight cars of five different types estimated to cost approximately $292,000,000, or a total of about $402,000,000.

A larger amount of equipment could not be ordered in 1918, because of the impracticability of securing the allotment of any greater amount of material for the construction of railroad equipment, all such material being in such urgent demand for other war necessities. The equipment thus ordered in 1918 was allocated to the various railroads under federal control according to the needs of the traffic of each road. In many cases these allocations were opposed by the corporations, various reasons being alleged. The opposition was in some cases so extreme as to seriously delay final disposition of the cars and engines. Under these circumstances the director general made no effort to place further orders for equipment. After a number of conferences some changes were made in specific cases (the allocations being increased in a number of instances at the request of the corporation), so that before the end of federal control the entire number

of engines and cars were allocated to and accepted by the carriers.

It is estimated that it will require a minimum of $200,000,000 and possibly $250,000,000 to complete in a satisfactory way and ready for operation:

(*a*) Projects which were started in 1918, or prior thereto, but on which work has stopped because of lack of funds.

(*b*) Projects tentatively approved during federal control and which, while considered necessary for the proper development of the roads, have not been started through lack of proper credit.

(*c*) Those projects on which work is now progressing because they are considered absolutely necessary for the safe and proper operation of the railroad on which located, but which will not have been completed on December 31, 1919.

The amounts named are in addition to those properly chargeable to operating account and not to capital.

AUTHORIZATIONS AND EXPENDITURES FOR WORK CHARGEABLE TO CAPITAL ACCOUNT DURING THE CALENDAR YEARS 1918 AND 1919 (THREE MONTHS ESTIMATED) FOR CLASS I RAILROADS, AND TERMINAL AND SWITCHING COMPANIES

[EXCLUDING EQUIPMENT PURCHASED BY UNITED STATES RAILROAD ADMINISTRATION FOR FEDERAL CONTROLLED ROADS]

Class of work	Estimated cost of work authorized			Expenditures for work actually done		
	During year 1918	During year 1919	Total for 2 years 1918 and 1919	During year 1918	During year 1919	Total for 2 years 1918 and 1919
1	2	3	4	5	6	7
Additions and Betterments (Existing Lines)						
Widening cuts and fills, filling trestles, etc.	$7,867,801	$5,476,381	$13,344,182	$4,214,617	$4,383,535	$8,598,152
Ballasting	10,211,521	5,595,724	15,807,245	4,441,845	4,860,246	9,302,091
Rails and other track material	34,926,896	29,643,517	64,570,413	15,300,068	24,473,859	39,773,927
Bridges, trestles and culverts	43,582,779	23,387,835	66,970,614	24,312,035	15,963,112	40,275,147
Tunnel and subway improvements	2,426,591	991,543	3,418,134	1,254,257	787,796	2,042,053
Track elevations or depressions	18,462,784	4,900,610	23,363,394	4,370,542	3,099,761	7,470,303
Elimination of grade crossings	14,253,313	5,093,382	19,346,695	4,643,083	3,859,440	8,502,523
Grade crossings and crossing signals	1,646,023	1,276,985	2,923,008	936,211	911,122	1,847,333
Additional main tracks	62,899,741	17,566,522	80,466,263	32,432,890	16,893,523	49,326,413
Additional yard tracks, sidings and industry tracks	127,333,055	30,957,584	158,290,639	62,828,103	37,650,726	100,478,829
Changes of grade or alignment	8,254,829	1,869,989	10,124,818	3,679,500	3,049,674	6,729,174
Signals and interlocking plants	17,277,111	3,256,481	20,533,592	6,805,653	6,604,614	13,410,267
Telegraph and telephone lines	5,859,440	1,466,011	7,325,451	3,071,422	2,563,717	5,635,139
Roadway machinery and tools	2,153,943	768,978	2,922,921	1,268,904	1,249,997	2,518,901
Section houses and other roadway buildings	3,327,865	2,023,384	5,351,249	2,052,717	1,762,469	3,816,186
Fences and snowsheds—right of way, snow or sand fences	1,875,321	942,784	2,818,105	954,443	762,050	1,716,493
Freight and passenger stations, office buildings and other station facilities	49,202,227	13,492,270	62,694,497	19,149,023	13,415,712	32,564,735
Hotels and restaurants	951,822	464,298	1,416,120	555,869	593,278	1,149,147
Fuel stations and appurtenances	8,100,426	3,723,450	11,823,876	4,461,832	4,727,367	9,189,199
Water stations and appurtenances	12,875,393	4,981,844	17,857,237	6,818,530	5,674,918	12,493,448
Shop buildings, engine houses and appurtenances	58,114,009	30,119,703	88,233,712	35,373,374	45,259,663	80,633,037
Shop machinery and tools	22,390,530	8,514,951	30,905,481	8,368,837	12,819,342	21,188,179
Electric power plants, substations, transmission and distribution lines	19,425,506	4,887,272	24,312,778	7,390,287	9,186,443	16,576,730
Wharves and docks	5,945,977	1,856,418	7,802,395	1,939,963	2,221,891	4,161,854
Coal and ore wharves	5,917,618	931,278	6,848,896	4,687,634	895,954	5,583,588
Grain elevators and storage warehouses	2,981,285	1,763,721	4,745,006	1,739,637	1,892,353	3,631,990
Real estate	4,350,769	5,270,598	9,621,367	983,278	7,493,467	8,476,745
Assessments for public improvements	3,219,439	1,918,810	5,138,249	1,602,212	1,483,032	3,085,244
All other improvements	11,493,126	2,804,426	14,297,552	6,586,206	2,614,880	9,201,086
Total (excluding equipment)	$567,327,140	$215,946,749	$783,273,889	$272,222,972	$237,143,941	$509,376,913
Equipment						
Locomotives, steam	$121,643,680	$12,211,716	$133,855,396	$70,092,226	$39,327,182	$109,419,408
Locomotives, other	5,423,049	674,418	6,097,467	1,136,628	810,270	1,946,898
Freight-train cars	92,025,037	4,141,892	96,166,929	72,284,277	15,971,742	88,256,019
Passenger-train cars	16,911,728	1,125,022	18,036,750	12,648,486	1,530,318	14,178,804
Work equipment	7,753,539	2,089,104	9,842,643	2,214,616	4,879,246	7,093,862
Motor cars and trailers	587,998	56,577	644,575	55,926	568,997	624,923
Floating equipment	1,843,843	183,989	2,027,832	818,847	723,073	1,541,920
Miscellaneous equipment	2,857,097	192,787	3,049,844	1,824,952	186,738	2,011,690
Improvements to existing equipment	40,201,867	20,504,113	60,705,980	18,982,852	21,104,386	40,087,238
Total equipment	$289,247,838	$41,179,618	$330,427,456	$180,058,810	$85,101,952	$265,160,762
Other Capital Expenditures						
Construction of extensions, branches and other new lines	$49,603,560	$7,826,263	$57,429,823	$21,346,231	$10,011,832	$31,358,063
Total all expenditures	$906,178,538	$264,952,630	$1,171,131,168	$473,628,013	$332,267,725	$805,895,738

Note—Columns 5, 6 and 7 include approximately $50,000,000 paid by railroad companies, principally for equipment.

At the beginning of federal control it developed that as to capital expenditures the method of handling divided the companies into three classes:

(1) Those companies which pursued a well-defined course in preparing a budget within their resources and prepared in an orderly way to finance the projects.

(2) Those companies which prepared a partial budget but permitted a large latitude to local officials with the result that in the aggregate large sums were spent before arranging for finances.

(3) Those companies which, living from hand to mouth, prepared no budget, made no provision for financing, etc.

The Division of Capital Expenditures has not undertaken to introduce novel or untried methods. It has used the rules prescribed by the Interstate Commerce Commission as a foundation. It has adopted the best practices of the conservatively managed railroads under private control and has endeavored to introduce those as a standard throughout the country with the hope that after the expiration of federal control and the removal of a central authority in these matters the officers of the railroad corporations will continue to use such methods, and perhaps one of the results of federal control of railroads will be the active watchfulness of the railroad companies in connection with the authorization of moneys for additions, betterments, road extensions and the purchase of equipment, and the closer and more prompt accounting of expenditures made therefor, and this will be of material assistance to the railroad companies in the preparation of reports required by the Valuation Section of the Interstate Commerce Commission.

Much of the work of the Division of Capital Expenditures has depended upon the conscientious service rendered by the federal auditor of each railroad and his staff.

The difficulty of retaining trained men under war conditions has been recognized. Frequently the best men were those who were most anxious to enter the Army or Navy, and it has been hard on short notice to fill their places.

For the careful work that has been done under these trying circumstances the Division of Capital Expenditures of the United States Railroad Administration, extends its thanks.

Rock Island Installs Automatic Train Control

Twenty-One Miles of Heavy Traffic Double Track Territory Equipped with Stop and Speed Control Apparatus

AN INITIAL INSTALLATION of automatic train control has recently been completed on the main line of the Chicago, Rock Island & Pacific, between Blue Island, Ill., and Joliet, a distance of about 21 miles. The line is double track and handles a heavy passenger and freight traffic. The Regan Safety Devices Company, Inc., New York, successor to the Casale Safety Device Company, Inc., is the designer of the train control system, which consists of two elements; one the locomotive and tender equipment and the other the roadside apparatus. The locomotive and tender equipment includes a shoe mechanism, a speed controller, an electro-pneumatic valve, a relay, a battery, a release switch and the necessary conduits and wiring for the electric circuit. The roadside apparatus consists of a ramp, located by the side of the track, a battery, a relay and the necessary conduits and wiring for connecting the ramp with the existing signal system. The locomotive and roadside apparatus were installed by the railroad mechanical and signal forces respectively. Twenty locomotives are equipped and in service.

The system, which is of the intermittent electrical contact type, embraces automatic speed control, as well as automatic stop features and is arranged to carry continuous speed control through caution territory. In other words, after having been actuated to provide speed control, it operates to restrict the speed of the train to a predetermined rate until the conditions permit unlimited speed or necessitate a stop, as the case may be, depending upon the position of the next signal.

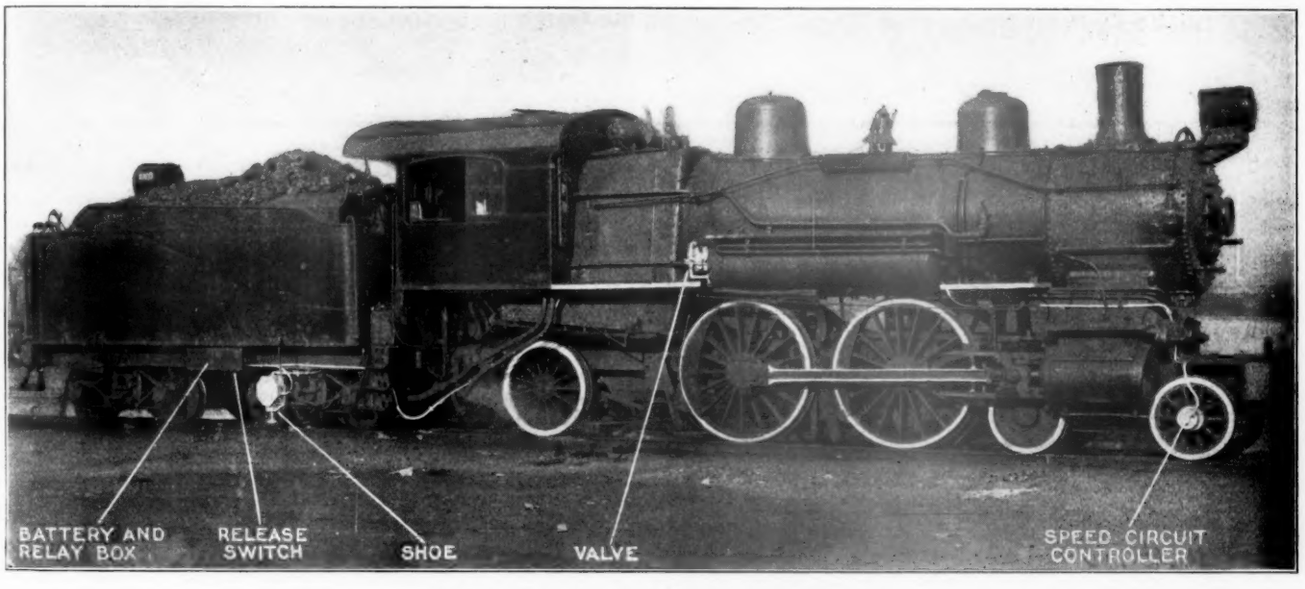
General Arrangement of the Apparatus

The arrangement of the apparatus upon one type of locomotive is shown in one of the illustrations. The speed controller is rigidly bolted to the end of the axle of the pony truck and is contained in a dust-proof housing. It consists of a centrifugal governor arranged to open and close a circuit at any predetermined speed, the setting of which depends upon the class of traffic to which the locomotive is assigned. Connection is made to the controlling circuit through a stationary junction box and flexible conduit. A ball or roller bearing is provided to reduce friction to a practicable degree and to permit free movement of the condulet.

The electro-pneumatic valve is located at a point convenient for connection to the air brake system. This valve operates in response to an electromagnet and controls the brake pipe pressure and the reservoir supply to the engineman's brake valve. When the magnet is de-energized, the valve reduces the brake pipe pressure to insure a service application of the brakes; and at the same time it restricts the reservoir supply, so that the brakes cannot be released by the engineman's brake valve. The brake pipe pressure may, however, be still further reduced by the engineman in about the same manner as with the conductor's emergency valve.

The shoe mechanism consists of a shoe stem, a circuit controller and a cylinder housed in a substantial steel case which is bolted rigidly to the arch bar of the tender truck or to the trailer truck of the locomotive, as the case may be. The shoe stem is fitted with a tempered steel shoe sole for ramp contact. It is held in position and in contact while moving over a ramp by means of brake pipe pressure in the shoe stem cylinder, to which the brake pipe is connected. The stem is of cast iron and cored so that, should it be broken, a service application of the brakes would result. The shoe circuit controller operates to substitute, in a normally closed circuit, energy from the roadside battery for that from the storage battery carried on the locomotive, also to transmit current of the proper characteristic from the roadside battery to actuate the locomotive apparatus and control the train consistent with the indication displayed by the block signal. If for any reason it is desired to fasten the shoe stem in the "up" position, as in the case of a locomotive operating outside of automatic train control territory, a bolt lock is provided which holds it securely in place.

The storage battery is of the portable lead type. It consists of 5 cells of 80-ampere-hour capacity and operates through resistance to insure economical and efficient service.

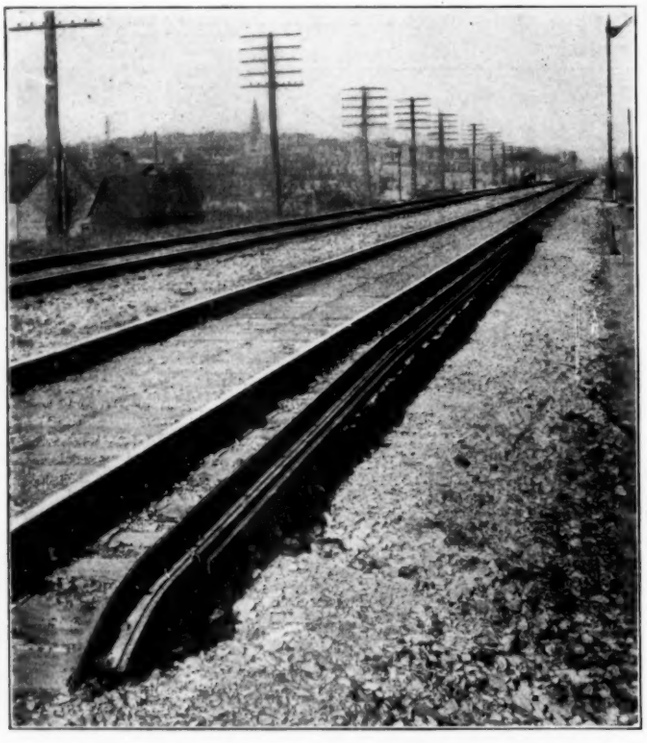


The Locomotive and Tender Equipment

A three-position relay is connected in the circuit so as to repeat the position of the signal. This is accomplished by means of electric currents of the several characteristics that may be transmitted by the roadside and locomotive apparatus.

The ramp is made up of angle iron, with a copper insert. This is mounted upon cast iron supports which are bolted rigidly to the standard crossties. A wood block separates the ramp iron from the supporting castings. This ramp is patented and is different from any ramp used elsewhere for other devices. As installed on the Rock Island it is 120 ft. long and is located approximately 160 ft. in the rear of each signal. The ramp and the track are so connected with the automatic block system that the signal will assume the stop position if the ramp circuit is de-energized.

This train control system is operated in connection with three-position upper quadrant, semaphore type signals with polarized line circuits. The relays and terminals for the ramp circuits are housed in the signal case or in a special relay box bolted thereto. Connection from the mechanism to the ramp in each case is made through conduits, although trunking was placed above ground at a few locations in order to complete the installation, because some of the materials



The Roadside Apparatus Showing the Ramp Approximately 160 ft. from Signal

required could not be had promptly. This temporary work is expected to be replaced with "Parkway" conduit in the near future.

The Operation of the System

In the operation of this system an application of the brakes is made by the automatic control apparatus when any of the following conditions exist:

(a) When a train passes a signal in the caution position at an excessive speed.

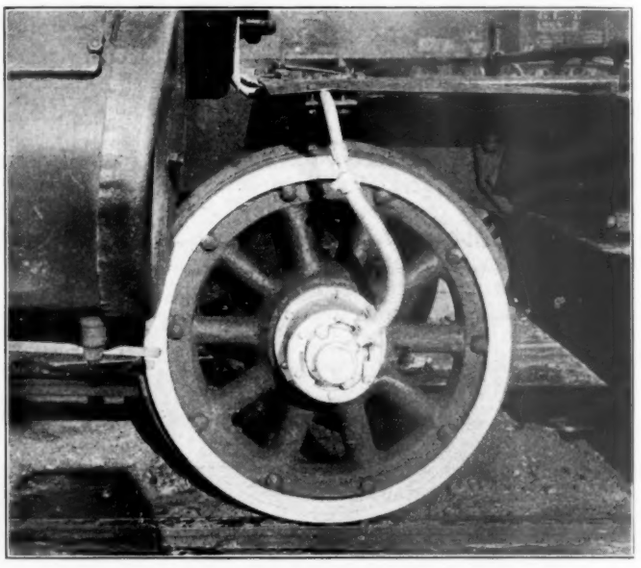
(b) Whenever a train exceeds a predetermined speed while running in a caution block.

(c) At a stop signal, or when a block is occupied.

When an application of the brakes is made by the automatic control apparatus, a release may be had, with the system in service, only by one of three methods:

1. By automatic release, as in caution block territory, when the speed is below a predetermined point.
2. By automatic release, as when passing from caution block territory to a clear block.
3. By the engineman operating the release switch to pass a stop signal.

In order to pass a block signal in the stop position it is necessary for the engineman to operate the release switch provided for that purpose. The train may then proceed, but



The Speed Circuit Controller

only under automatic speed control, until the next block signal is reached, when, if the block is clear, unlimited speed will be restored automatically.

On this installation there is no part of the automatic train control system located in the engine cab, its operation being entirely independent of the engineman. It does not in any way interfere with the control or operation of the train by the engineman so long as he obeys signal indications. It is intended to operate if for any reason the engineman fails.

The first official inspection of the original installation of this system was made on the Rock Island, on July 1, 1919, and a second official test was made on July 28, 1919, under the supervision of the Automatic Train Control Committee of the United States Railroad Administration. Subsequently, arrangements were made for a more extended service test, and the initial installation on the double track main line between Blue Island and Joliet is the result.

On March 12, 1920, a special train was operated from Chicago to Joliet for the purpose of demonstrating this automatic train control system. The train equipment consisted of an engine, two private cars and a heavy combination baggage car. The private cars were fitted with speed indicators and brake pipe pressure gages. For this occasion the speed controller on the locomotive was adjusted at a predetermined speed of 30 miles an hour. A report of this inspection trip appeared in the *Railway Age* of March 19, page 948.

ONE SIGNIFICANT DEVELOPMENT of the hearings before the Interstate Commerce Commission was the apparent new attitude of the organized shippers. With some exceptions they were represented as more interested in obtaining service and in facilities than in rate paring. There was an absence of the old animosities of the other big rate cases before the Commission.—*Washington Correspondent, New York Sun.*

Tie Producers Discuss Production Outlook

Relations with Railroads, Specifications and Threatened Strike Considered at Chicago Meeting

THAT THE RAILWAYS will be fortunate if the production of cross ties this year reaches the normal pre-war figure was evident from the discussion at the annual convention of the National Association of Railroad Tie Producers which was held at the Sherman hotel, Chicago, on April 22 and 23. The readjustments in the tie-producing industry following the return of the railroads to private control after two years of centralized purchases during which time new and uniform specifications were introduced, and the universal difficulties with labor, accentuated by a strike of workers in the saw mills and woods called for May 1, lead to the belief that the output of ties will probably be below normal. This situation is of particular interest to the railways because of the fact that the production for the two years preceeding this was likewise below normal and the present heavy demand is forcing the prices upward rapidly.

The National Association of Railroad Tie Producers was formed at St. Louis in January, 1919, and comprises within its membership many of the larger producers of railway cross ties, particularly in the middle-west. The officers of the association for the past year were, president, John W. Fristoe, president, T. J. Moss Company, St. Louis, Mo.; vice-president, E. M. Blake, production engineer with Charles R. McCormick & Company, San Francisco, Cal.; secretary of the Board of Directors, Robert E. Hussey, vice-president and treasurer, Hussey Tie Company, St. Louis, Mo.; treasurer, Robert E. Lee, president, Hobart-Lee Tie Company, Springfield, Mo.; secretary-manager, Orville A. Pier, St. Louis, Mo.

The Present Situation

The situation now confronting the producers of cross ties was outlined by J. W. Bristoe, president, in part as follows:

Up to a few months ago our industry was dominant by substantially the same authorities that controlled our railroads. Published prices were offered to any and all producers, and yet I have been reliably informed that on two of our largest tie-producing railroads substantially three-fourths of all the cross ties purchased by them under federal control, were obtained from firms or individuals who had been previously known and established as tie contractors. There certainly could be no more convincing proof of the necessity and usefulness of efficient and established organizations of men and capital who make a business of the production of cross ties, unless it was the immediate decision on the part of these two producing roads to purchase their cross tie supplies through line contractors as soon as they were permitted to do so.

We have endorsed the principle of a standard specification and the uniform application of the same, but until the railroads, collectively and universally, refuse to purchase cross ties on any other basis, there can be no concerted action or binding resolutions. The influences making up the demand for cross ties do not at present indicate any universal desire for a standard specification in actual cross tie purchases, and likewise the supply of cross ties at the present time, counting those within and those entirely without the requirements of heretofore standard specifications, is beyond doubt inadequate.

The demand for cross ties, as expressed in the best of all barometers, that is actual and bonafide inquiries, has caused a number of us to invest additional capital as fast as we could properly do so on the assumption that increased production must come through the employment of additional labor and equipment. Coincident with our desire for increased production, the demand for other necessities is even greater than that for cross ties, and credits have been generally expanded to such a point that interest rates are a matter of grave concern.

The purchase and production of cross ties is a peculiar business wherein we perforce must make large and substantial investments considerably in advance of the actual date of delivery of cross ties to our customers. We in turn sell our cross ties on a basis of what sometimes becomes a short term loan. Good business always prompts us to keep our aims well within our means, and a tight money market may probably restrict the production until this situation is relieved. Let me emphasize that we shall need all the help possible from our customers in obtaining equipment to more rapidly turn over our stock, and we must expect prompt remittance if we are to increase production.

The Pacific Coast As a Producer of Cross Ties

The relatively large shipments of ties from the Pacific Coast to the roads in the Eastern and Central states during the last two years have attracted attention to that area as a source of supply for the future. The possibilities of the western states as a source of tie supply were described in detail by E. M. Blake, production engineer with Charles R. McCormick & Company, San Francisco, Cal., from whose paper the following information was taken.

Based upon the most reliable information obtainable, there are in the United States today probably about 550,000,000 acres of standing forest including both privately owned and public lands. Of this total there are about 80,000,000 acres in the Pacific Coast states of California, Oregon and Washington. Although a relatively small percentage of the whole, it is estimated there are about thirteen hundred billion board feet of standing timber on these 80,000,000 acres, which is approximately one-half of the remaining supply of standing timber in the United States. About one-half of this quantity, or 630 billion board feet, is estimated to be Douglas fir, representing about one-quarter of the total timber stand in the United States today. It is interesting to note, in comparisen, that the total stand of yellow pine in the southern states today, is probably not much in excess of 225 billion board feet.

The present relation between the annual production of lumber and the resources of the Pacific Coast states gives an indication of the future possibities of that district. The three states combined, in 1918, produced about 8,500,000,000 board feet and in 1919 about 8,800,000,000 board feet. The estimated total lumber production in the United States for 1919 is placed at about 30,000,000,000 board feet as against about 32,750,000,000 in 1918 and 36,000,000,000 board feet in 1917. The normal annual lumber export total from the Pacific Northwest is approximately 600,000,000 board feet but the total exported in 1919 was probably less than 400,000,000 board feet, this reduction being accounted for by conditions brought on by the war and the acute shortage of available tonnage.

The manufacture of cross ties on the Pacific Coast is largely incidental to the lumber business. While the number of hewed cross ties produced annually on the Pacific Coast is small in comparison with the number of sawed ties, still a large number of split and hewed redwood and

hewed fir ties are produced each year outside of the mills. There are also many tie sawmills in the Lewis River district of Southern Washington and along the Willamette Valley in Oregon. The production of cross ties, however, has been principally a mill problem of secondary importance and the annual output of cross ties in the future will depend, aside from the pressure of the demand, upon the attitude of the lumber mills toward the manufacture of this particular railway timber product. This, in turn, will depend upon the specfications, inspection rules and prices controlling the transactions.

The production of cross ties on the Pacific Coast in 1919 probably represented only from 6 to 7 per cent of the total lumber production, from which it is evident that cross ties today are a relatively small factor in the lumber industry. Probably over 90 per cent of the Douglas fir ties manufactured on the Pacific Coast are sawed in lumber mills from logs of large dimension because the average stand of Douglas fir trees is of large size and it has not paid to log the smaller trees except for use as piling. Therefore, the conditions and problems which are encountered in the production of cross ties on the Pacific Coast are quite fundamentally different from those which influence the tie situation east of the Rocky mountains.

Douglas Fir Ties

The principal sources of Douglas fir ties are as follows:

Washington: in the Bellingham and Everett districts, on the Olympic peninsula, in the Gray's Harbor and Willapa Harbor districts, in the Lewis River district of Southern Washington, along the Columbia river and in general back to and occasionally east of the line of the Cascade mountains.

Oregon: along the Columbia river, in the Coos Bay district, along both sides of the Willamette river and generally in the west central areas of the state from the Willamette river to the coastline.

California: in scattering areas along the coast from the Oregon line nearly to Santa Cruz, in the Mt. Shasta region of north central California, and along the slopes of the Sierra Nevadas as far South as the Yosemite Valley district.

In connection with the use of Douglas fir it is interesting to note that the great durability and resistance to saturation by water of Douglas fir and its great mechanical strength, combined with its lightness in weight, particularly fit it for use in the form of cross ties. The unusual refractoriness of its cellular structure has, in the past, tended to limit the treatment of the heartwood with creosote oil or other preservatives, but the recent development and perfection of the mechanical perforating process assures a greatly increased use of treated Douglas fir in cross ties in the future. Douglas fir also grows very large in size and very dense in stand and the number of hewed ties is very small, most fir ties being sawed from the logs. The stands commonly run over 1,000,000 board feet to the acre. Individual trees run up to 14 ft. and 15 ft. in diameter and over 300 ft. in height. They often grow to a height of 150 feet without a single branch. On account of its large average size, therefore, it is probable that the majority of Douglas fir cross ties will generally be manufactured from the heartwood of the timber.

Redwood and Other Ties

The principal sources of redwood ties are in Mendocino, Humboldt, Sonoma and Marino counties, lying along the coastline north of San Francisco, from which areas ties are shipped both by rail and water. A smaller quantity of redwood ties is provided annually from the Santa Cruz district, lying along the coast south of San Francisco, and including the Big Basin in which is located the California Redwood Park.

Probably 85 to 90 per cent of redwood ties are split from the logs, many of them from the logs as they lie on the hills after being felled. The splitting is usally followed by some hewing, constituting a large volume of work every year. About 10 to 15 per cent are sawed, most of which are for export.

Cedar ties are manufactured principally in the Coos Bay district of Southern Oregon. Cross ties of other kinds of wood, including hemlock, larch, spruce, cedar and western yellow pine, are produced on the Pacific Coast but only in relatively small quantities.

The Available Markets

The principal markets for the sale of cross ties produced on the Pacific Coast have been as follows:

1. Local markets in the states of Washington, Oregon, California, Nevada and Arizona to meet the requirements of the steam and electric railroads, industrial lines, logging roads and mining tracks.

2. Domestic markets for the supply of railroad requirements between the Rocky mountains and the Mississippi Valley. While ties have been shipped to those markets in the past, principally for use on railroad lines in Montana, Idaho, Wyoming and the Dakotas, during government control of railroads, large numbers were shipped for widespread use in other sections of the district above defined.

3. Domestic markets for the supply of cross tie requirements to railroads in the Atlantic seaboard district north of the Carolinas and east of the Mississippi Valley. Shipments to these markets were inaugurated under government control of railroads and ties were shipped from the Pacific Northwest in vessels through the Panama Canal to the Atlantic ports of New York, Philadelphia and Baltimore.

4. Foreign markets have been supplied with cross ties from the Pacific Northwest for a period covering about ten years. Large numbers of creosoted Douglas fir ties have been exported to India for the British Indian Railways. Heavy shipments have also been made in the past to China, Mexico, Central America and the west coast of South America. At the present time negotiations are under way, if not already completed, for the shipment of 3,000,000 pieces of cross ties to China for use on extensive railway construction work contemplated in that country. Since the signing of the armistice in November, 1918, many shipments of Douglas fir ties have been made to the United Kingdom and inquiries, which have not yet been followed by actual orders, have been received from Italy, France, Belgium and South Africa. The export of ties from the Pacific Coast during the past year would have been much larger had the tonnage been available.

The estimated production of cross ties in the states of California, Oregon and Washington for the calendar year 1919 by distribution of woods and distribution of markets, is as follows:

	Number of pieces	
Douglas fir:		
For Pacific Coast railroads	5,710,000	
For Inland and Eastern railroads by rail	3,850,000	
For Inland and Eastern railroads by vessel	1,225,000	
For export—		
To United Kingdom	1,579,400	
To west coast of South America	46,200	
To Mexico	2,100	
Estimated total for Douglas fir		12,412,700
Redwood:		
For Pacific Coast railroads	2,575,000	
To west coast of South America, etc.	200,000	
Estimated total for redwood		2,775,000
Cedar for Pacific Coast railroads		175,000
Yellow pine, western larch, western spruce, western hemlock and other kinds for Pacific Coast railroads		250,000
Estimated total production, 1919		15,612,700

The Possibilities of the Future

Quantity production of Douglas fir cross ties in Oregon and Washington is capable of almost unlimited increase in the future provided the conditions controlling production are

favorable. These conditions are based fundamentally upon a purchase price balanced with the requirements of both specifications and inspection rules. It is anticipated that the use of Douglas fir lumber will steadily increase to meet both domestic and foreign demand and if heartwood cross ties of close grain wood are called for in future specifications, their price again must be rationally balanced with the market for the higher priced lumber products inasmuch as these lumber products, bringing the higher prices, can be manufactured by the mills from the same logs which would be used in the production of the majority of cross ties.

As the quality specified and the consequent cost of cross ties has advanced it has been a matter of prudent economy to give them some form of preservative treatment in order to get the maximum life out of the higher priced tie. Thus it is that sapwood ties are rapidly going out of use and heartwood ties are taking their place at the higher price which heartwood commands.

With regard to redwood ties, their production will probably be limited to a percentage of the requirements of the western rail lines, for use generally in arid climates, and to meet certain export demand. There is only a relatively small amount of new growth redwood trees, and reforestation is taking place principally on Government reservations. Furthermore, very decided efforts are being made to save the redwood forests of California from further so-called inroads of commercial lumbering. While this movement is probably not destined to bring about any marked conservation in the commercial use of redwood, particularly on account of the great demand for this wood for building purposes, still it tends to limit the use of redwood for cross ties. Therefore, it does not appear probable that the future production of redwood ties will increase much above the normal annual output at the present time.

In conclusion, the railroad cross ties, produced on the Pacific Coast have been very largely a by-product of the lumber mill. In logging operations today, the smaller growth is left untouched except as removed for piling. With an increased demand for cross ties, however, this smaller growth will doubtless be hewed into ties or cut up in portable or small permanent tie sawmills. Therefore, it is quite entirely within the range of possibility that tie production on the Pacific Coast may become in the future a distinct and separate business of itself, as it is east of the Rock Mountains, correlated with but independent of the lumber mill. Mechanically perforated promptly after its manufacture to control or prevent checking, to hasten air seasoning, and to insure a uniform predetermined penetration of preservative, then economically treated with the maximum conservation of oil possible and with the vitally important reduction of time and temperature made possible by perforating, it is doubtful whether any cross tie timber will give a better account of itself in the track bed than Douglas fir.

Reforestation Commercially Practicable

The commercial practicability of reforesting cut-over timber lands to provide a future supply of cross ties was described by Howard Andrews, president of the Nashville Tie Company, Nashville, Tenn. In this paper Mr. Andrews stated that there is sufficient land not suitable for agriculture to provide a perpetual supply of timber, and if taken in hand now, at the end of 50 years there would be as much timber in the country as there is today. Forestry or reforestation methods can be made a safe and profitable business investment. A good tree can be raised on a square rod of land as easily as a farmer can raise two stalks of corn in hills three and one-half to four feet apart. It is my observation that an average tree protected from fire and in only reasonable good soil will increase in diameter one-fourth of an inch per year. Now, suppose a tree that is 12 inches in diameter with a body length of 32 feet becomes a tree 13 inches in diameter in four years. This represents an increase of 8½ feet board measure per year. Take an acre with 160 trees and this makes an aggregate gain of 1,360 feet board measure per year.

I am not an ardent advocate of planting new trees to any great extent on ordinary cut-over land, although this may be a wise thing to do in many instances, but there are scattered over the country so many tracts of land, large and small, which have been cut over and on which there are young growths of native trees which can be utilized for our future timber supply. Leave such land alone, keeping the woods fires out as much as possible, and the growth of timber will more than pay 6 per cent on the investment, and added to the growth is coming the enhancement in stumpage values which is sure to be great in the course of the next 10, 20 to 30 years.

However, to secure most efficient results, a system of practical forestry should be used on such timbered land. For instance, not oftener than every five years, or perhaps ten, it would pay to work over the land and cut trees where they stand too thick, remove those of inferior growth, or even cut all of the trees of marketable value. However, I would recommend that such occasional working of the forest be done more as a farmer weeds his corn or other growing fields, leaving the promising young growing trees to mature.

The feeling of the average tie man is that there will be enough timber for his life time, so why worry about the distant future. I maintain that tree growing can be made a good present-day business, a little slow, perhaps, but sure. There is certainly a profit each year if an acre will grow 1,000 feet board measure of timber, and such an acre is worth more at the end of the year, depending on the money

A Central Inspection Bureau

Railway men and tie producers alike have taken a great deal of interest in the subject of standard uniform specifications for cross ties and the corollary, the development of a central inspection bureau. While such measures were in effect during federal control they became inoperative at its termination except as supported by the individual roads.

The suggestion made by W. C. Nixon, a tie producer, that a central inspection bureau be formed is therefore of special significance at the present time. Mr. Nixon's suggestion is outlined below:

I believe in a standard set of specifications universally applied both in the manufacture and taking up of ties which will permit: (1) Any railroad under the specification may buy whatever it may want to, whether it be a large tie or a small tie, an oak tie or a gum tie, and (2) the producer to utilize his rapidly depleting timber to its very limit with the least possible wastage.

Having due regard for the existence of a standard specification, I must believe in the right of every railroad to buy any sort of a tie it wants; that is, to buy and to get any class of tie under the specification, and I would want the specification so complete as to cover all the possible requirements of every railroad. But I do not believe that a railroad which buys a No. 3 tie should attempt to get a No. 4 when the inspection starts, nor do I believe in a railroad buying a No. 3 and then accepting No. 2s and No. 1s as No. 3s. Neither do I believe in a railroad attempting to buy a No. 3 tie for a No. 2 price. As a result of the Federal control of railroads, what amounted to a central inspection bureau was put into effect, except that this inspection bureau was controlled entirely by one of the parties to the contract. When Federal control of railroads ceased, the officers under Federal control attempted to pass along to the tie business a central inspection bureau, which was to be controlled and operated by the American Railroad Asso-

ciation. The proposal was never agreed to, or even seriously considered by the tie producers, because it was felt that an inspection bureau of any sort should be properly neutral in its make up, both in its control and in its operation.

I submit the following as being a tentative plan for the organization of such a bureau which would be entirely neutral in its organization and neutral in its administration. I would have the producers' association appoint three representatives as members of a board of directors. I would have the American Railroad Association appoint three of its number as members of a board of directors; these six would meet and among themselves determine upon a seventh man, who would become president and general manager of the inspection bureau. I would have these seven people organize a corporation as its board of directors, the corporation to be organized under the laws of any state, according to the then existing conditions. Its purposes would be to operate a central inspection bureau for the inspection of cross ties without any attempt to make a profit thereon.

When ready to load any ties a producer would notify the nearest office of the bureau, giving date ready for inspector, probably number ready for inspection, approximate line up, etc. When the producer had no cars for the inspector, or no ties, the inspector would merely report to his office and go on another job. The railroad would not worry, for it would know that its ties would come to it as ordered, as far as humanly possible.

Such a plan would mean that no producer would know what particular inspector he was going to have, but he would know that if he had sold a certain number of ties of a certain grade that they were going to be taken up that way. If he did not believe he was being fairly treated, he would have an appeal to a regional inspector, and an appeal from that inspection to the Bureau itself. If a producer had reason to believe that a competitor was getting too easy inspection he in turn, would have an appeal to the Bureau.

Other Business

At the closing session of the convention the following officers were elected for the ensuing year: President, E. M. Blake, Chas. R. McCormick & Company, San Francisco, Cal.; vice-president, Robert E. Lee, Hobart-Lee Tie Company, Springfield, Mo.; secretary, J. J. Schafly, Potosi Tie & Lumber Company, St. Louis, Mo.; treasurer, John H. Johnson, B. Johnson & Son, Richmond, Ind.

Photograph from "International."

On the Bagdad Railway

Reading Combination Ordered Dissolved

WASHINGTON, D. C.

THE COMBINATION of the Reading Company, the Philadelphia & Reading Railway, the Philadelphia & Reading Coal & Iron Company, the Central Railroad of New Jersey and the Lehigh & Wilkesbarre Coal Company, was ordered dissolved by a decision of the United States Supreme Court handed down on Monday, April 26, affirming in part and reversing in part the decree of the district court in the suit instituted by the government to dissolve the intercorporate relations existing between the defendants on the ground that through such relations they constitute a combination in restraint of interstate commerce in anthracite coal, an attempt to monopolize or a monopolization of such trade in violation of the anti-trust act and that the railway companies had violated the commodities clause of the interstate commerce law.

The decision of the court was rendered by a 4 to 3 division, Chief Justice White and Justices Holmes and Van Devanter dissenting, while Justices McReynolds and Brandeis took no part in the decision. No decision was announced in the similar case pending against the Lehigh Valley.

The result of the decision, the court said, is that "the decree of the district court will be affirmed, as to the Lehigh Coal & Navigation Company, the Lehigh & New England Railroad Company, the Lehigh & Hudson River Railway Company, as to the restrictive covenants in the mining leases with respect to the shipping of coal, as to the dissolution of the combination between the Philadelphia & Reading Coal & Iron Company and the Lehigh & Wilkes-Barre Coal Company, maintained through the Reading Company and the Central Railroad Company of New Jersey. As to the Wilmington & Northern Railroad Company and as in the individual defendants, the bill will be dismissed without prejudice. As to the Reading Company, the Philadelphia & Reading Railway Company, the Philadelphia & Reading Coal & Iron Company and the Central Railroad Company of New Jersey, the decree of the district court will be reversed and the cause remanded with direction to enter a decree in conformity with this opinion, dissolving the combination of the Reading Company, the Philadelphia & Reading Railway Company, the Philadelphia & Reading Coal & Iron Company, the Central Railroad Company of New Jersey and the Lehigh & Wilkes-Barre Coal Company, existing and maintained through the Reading Company, with such provision for the disposition of the shares of stock and bonds and other property of the various companies, held by the Reading Company, as may be necessary to establish the entire independence from that company and from each other, of the Philadelphia & Reading Railway Company, the Philadelphia & Reading Coal & Iron Company, the Central Railroad Company of New Jersey and the Lehigh & Wilkes-Barre Coal Company, and also that such disposition shall be made by the decree of the stocks and bonds of the Lehigh & Wilkes-Barre Coal Company, held by the Central Railroad Company of New Jersey, as may be necessary to establish entire independence between these two companies to the end that the affairs of all of these now combined companies may be conducted in harmony with the law."

The majority opinion written by Justice Clarke sustains practically all of the contentions made by the government. After outlining the history of the case, the majority opinion said that the scheme of reorganization adopted in 1896, six years after the enactment of the anti-trust act, combined and delivered into the complete control of the board of directors of the holding company, all of the property of much the largest single coal company operated in the Schuylkill anthracite field, and almost one thousand miles of railway, over

which its coal must find its access to interstate markets. Its board of directors, obviously, the opinion said, thus acquired power to increase or decrease the output of coal from very extensive mines, the supply of it in the market and the cost of it to the consumer; to increase or lower the charge for transporting such coal to market; and to regulate car supply and other shipping conveniences, and thereby to help or hinder the operations of independent miners and shippers of coal.

"This constituted a combination to unduly restrain interstate commerce within the meaning of the act," the court said. "Obviously, also, it made the coal company and the railway company mere agents or instrumentalities of the holding company—the mining and transportation department of its business—for producing, purchasing and selling coal and for transporting it to market."

After disposing of several minor contentions, the opinion continued:

"We are thus brought to the consideration of what the decree shall be with respect to the really important defendants in the case, the three Reading companies, the Central Railroad Company of New Jersey and the Wilkes-Barre Coal Company.

"Before the re-organization of 1896 the gathering of more than two-thirds of the acreage of the Schuylkill field into the control of the two Reading companies was, as their reports show for the frankly avowed purpose, then not forbidden by statute, of monopolizing the production, transportation and sale of the anthracite coal of the largest of the three sources of supply.

"When in 1896 the problem was presented of re-organizing the financial affairs of the two companies, it was not solved, as it might have been, by creating separate coal and railroad companies to conduct independently interstate commerce in the two departments to which their railroad and coal properties were adapted, but, on the contrary, and very obviously for the purpose of evading the provision of the constitution of Pennsylvania prohibiting any incorporated common carrier from, directly or indirectly, engaging in mining 'articles' for transportation over its lines, and also of evading the provisions of the federal anti-trust act against restraining and monopolizing interstate commerce, resort was had to the holding company device, by which one company was given unrestricted control over the other two, with the power, inherent in that form of organization, of continuing and carrying forward the restraint and monopoly which had previously been acquired over that large volume of interstate commerce which was to be conducted by the coal and railroad companies.

"Again, when in 1901 a rivalry, imaginary or real, arose for the control of the Central Railroad Company, the holding company, regardless of the law, did not hesitate to purchase control of that great competing anthracite coal carrying system, with its extensive coal owning and mining subsidiary. This acquisition placed the holding company in a position of dominating control not only over two great competing interstate railroad carriers but also over two great competing coal companies engaged extensively in mining and selling anthracite coal, which must be transported to interstate markets over the controlled interstate lines of railway.

"Again, and obviously, this dominating power was not obtained by normal expansion to meet the demands of a business growing as a result of superior and enterprising management, but by deliberate, calculated purchase for control.

"That such a power, so obtained, regardless of the use made of it, constitutes a menace to and an undue restraint upon interstate commerce within the meaning of the anti-trust act, has been frequently held by this court.

"Thus, this record clearly shows a group of men selecting the holding company with an 'omnibus' charter and not only investing it by stock control with such complete dominion over two great competing interstate carriers and over two great competing coal companies extensively engaged in interstate commerce in anthracite coal as to bring it, without more, within the condemnation of the anti-trust act, but it also shows that this power of control was actually used, once successfully, to suppress the building of a prospective competitive railway line, and a second time, successfully until the court condemned the 65 per cent contracts as illegal, to suppress the last prospect of competition in anthracite production and transportation. To this it must be added that up to the time when this suit was commenced this holding company had continued in active, dominating control of the Reading Railway Company and of the competing Central Railroad system, and also of the two coal companies, thus effectually suppressing all competition between the four companies and pooling their earnings. It is difficult to imagine a clearer case and in all essential particulars it rests on undisputed conduct and upon perfectly established law. It is ruled by many decisions of this court, but specifically and clearly by United States v. Union Pacific R. R. Co., supra.

"For flagrant violation of the first and second sections of the anti-trust act, the relations between the Reading Company, the Reading Railway Company and the Reading Coal Company and between these companies and the Central Railroad Company of New Jersey must be so dissolved as to give to each of them a position in all respects independent and free from stock or other control of either of the other corporations.

"With respect to the contention that the commodities clause of the act of June 29, 1906 (34 Stat. 584, 585), is being violated by the Reading Railway Company and the Central Railroad Company.

"The circuit judges centering their attention: upon the fact that the Reading Railway Company did not own any of the stock of the Reading Coal Company; that the two companies had separate forces of operatives and separate accounting systems; and upon the importance of maintaining the theory of separate corporate entity as a legal doctrine, concluded, upon the authority of United States v. Delaware & Hudson Co., 213 U. S. 366, 413, that the evidence did not justify holding that in transporting the products of the Reading Coal Company's mines to market the Reading Railway Company was carrying a commodity mined or produced by it or under its authority or which it owned in whole or in part or in which it had any interest, direct or indirect.

"But the question which we have presented by this branch of the case is not the technical one of whether ownership by a railroad company of stock in a coal company renders it unlawful for the former to carry the product of the latter, for here the railroad company did not own any of the stock of the coal company. The real question is whether combining in a single corporation the ownership of all of the stock of a carrier and all of the stock of a coal company results in such community of interest or title in the product of the latter as to bring the case within the scope of the provisions of the act.

"The purpose of the commodity clause was to put an end to the injustice to the shipping public, which experience had shown to result from discriminations of various kinds, which inevitably grew up where a railroad company occupied the inconsistent positions of carrier and shipper. Plainly in such a case as we have here this evil would be present as fully as if the title to both the coal lands and the railroads were in the holding company, for all of the profits realized from the operations of the two must find their way ultimately into its treasury—any discriminating practice which would harm the general shipper would profit the holding company. Being thus clearly within the evil to be remedied, there remains the question whether such a

controlling stock ownership in a corporation is fairly within the scope of the language of the statute.

"In terms the act declares that it shall be unlawful for any railroad company to transport in interstate commerce any article or commodity . . . mined or produced by it, or under its authority, or which it may own in whole or in part, or in which it may have any interest, direct or indirect.

"Accepting the risk of obscuring the obvious by discussing it, and without splitting hairs as to where the naked legal title to the coal would be when in transit, we may be sure that it was mined and produced under the same authority that transported it over the railroad. All three of the Reading companies had the same officers and directors and it was under their authority that the mines were worked and the railroad operated, and they exercised that authority in the one case in precisely the same character as in the other —as officials of the holding company. The manner in which the stock of the three was held resulted, and was intended to result, in the abdication of all independent corporate action by both the railway company and the coal company, involving as it did the surrender to the holding company of the entire conduct of their affairs. It would be to subordinate reality to legal form to hold that the coal mined by the coal company, under direction of the holding company's officials, was not produced by the same authority that operated the Reading Railway lines. The case falls clearly within the scope of the act, and for the violation of this commodity clause, as well as for its violation of the anti-trust act, the combination between the Reading Railway Company and the Reading Coal Company must be dissolved.

"The relation between the Central Railroad Company and the Wilkes-Barre coal company presents a different question, for here the railroad company owns over eleven-twelfths of the stock of the coal company, and therefore the holding in 213 U. S. 366, supra, is especially pressed in argument,—that the ownership of stock by a railroad company in a coal company does not cause the former to have such an interest in a legal or equitable sense in the product of the latter as to bring it within the prohibition of the act. But this holding was considered in United States v. Lehigh Valley R. R. Co., 220 U. S. 257, 272 and it was there held not applicable where a railroad company used its stock ownership for the purpose of securing a complete control over the affairs of a coal company, and of treating it as a mere agency or department of the owning company. This rule was repeated and applied in United States v. D. L. & W. R. R. Co., 238 U. S. 516, 529. It results that it may confidently be stated that the law upon this subject now is, that while the ownership by a railroad company of shares of the capital stock of a mining company does not necessarily create an identity of corporate interest between the two such as to render it unlawful under the commodities clause for the railroad company to transport in interstate commerce the products of such mining company, yet where such ownership of stock is resorted to, not for the purpose of participating in the affairs of the corporation in which it is held in a manner normal and usual with stockholders, but for the purpose of making it a mere agent, or instrumentality or department of another company, the courts will look through the forms to the realities of the relation between the companies as if the corporate agency did not exist and will deal with them as the justice of the case may require.

"Applying this rule of law to the relation between the Central Railroad Company and the Wilkes-Barre Coal Company with the former owning over eleven-twelfths of the capital stock of the latter and using it as the coal mining department of its organization, we cannot doubt that it falls within the condemnation of the commodities clause and that this relation must also, for this reason, be dissolved.

False Clear Signal Cause of Damage Suit

A SUIT FOR DAMAGES filed by the Nashville, Chattanooga & St. Louis jointly with the administration for the William Brame estate against the Western Union Telegraph Company, was decided by the United States district court at Nashville, Tenn., in favor of the defendant on April 14. The suit was the outgrowth of a butting collision between a freight and a passenger train caused by a false clear signal accepted by the freight train. The collision occurred near Rockledge, Tenn., on December 23, 1915, and resulted in the death of 12 persons and the injury of 35. A report of this collision appeared in the January 21, 1916, issue of the *Railway Age Gazette*, page 104.

Evidence was produced in court which indicated that the signal might have assumed a false clear indication due to the crossing of signal and telegraph circuits. Both the Western Union and the railroad signal wires were carried on the same poles and these were being transferred to a new location some distance away from the old pole line to make room for another track which the railroad company desired to construct. The important points argued during the trial were whether crosses and grounds might have existed in the signal circuit itself causing the failure, and whether a wire carrying a voltage and current which existed in the telegraph circuits could operate a relay if it were allowed to rest on the weatherproof installation of the signal circuit. In the latter case the expert witnesses for the defense were of the opinion that it would require from 1,500 to 4,000 volts to break down the insulation, although no tests were made to substantiate this testimony. The plaintiff maintained that under the conditions existing at the time of the accident there was sufficient voltage to penetrate the insulation. Evidence was also introduced to show that an eight-cell battery, which after having been in service for some time and which operated two 500-ohm relays at another point did not have sufficient capacity to operate a relay which required 5.6 volts. The test on this battery showed, at the time of the accident, that it delivered 4.5 volts which, it was claimed, was insufficient to operate the relay.

The decision in the case hinged on whether telegraph company wires came in contact with signal wires. The judge's instructions to the jury pointed out that in order to arrive at a verdict in favor of the plaintiff it was necessary to show (1) that the false clearing of the signal was caused by a contact being made between a signal wire and a telegraph company wire; (2) that the contact was brought about by the act of a telegraph company's employee; and (3) that if such a contact was made through the action of the Western Union Telegraph Company or one of its employees it was an act of negligence that caused the contact.

No witnesses testified to having seen any wire of the telegraph company in contact with a signal wire to cause the false clear signal or that such contact was brought about by an employee of the telegraph company. Since these three conditions were not proven to the satisfaction of the jury a verdict in favor of the defendant was given.

THE WORLD'S PRODUCTION OF COAL is estimated by the United States Geological Survey as 1,170,000,000 metric tons in 1919 (metric tons of 2,205 lb.), as compared with 1,332,000,000 metric tons in 1918.

CANADA BUYS HEAVILY HERE.—Canadian trade returns for February show that during that month the Dominion bought from the United States $23,000,000 worth of goods more than she sold to that country. American sales to Canada during the month were greater by $29,000,000 than American sales to Japan; $35,000,000 greater than American sales to Argentina, Brazil, Chile and Uruguay combined, and $47,000,000 greater than sales to China, British India and Egypt put together.

Modern Tendencies in Railway Water Supply*

The Great Importance of This Branch of the Service Demands Well Organized Supervision

By C. R. Knowles
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THE ESTIMATED annual consumption of water by the railroads of the United States is, in round numbers, 900,000,000,000 gals. The cost of furnishing this water, not including interest and depreciation charges, will average over 7 cents per 1,000 gal., making a total annual expenditure of more than $63,000,000 for water. To supply this water it is necessary to maintain approximately 13,000 water stations for locomotive supply in addition to many connections for general service.

An analysis of the consumption of 15,622,000,000 gal. of water on a middle western railroad indicated that 23 per cent, or 3,600,000,000 gal., was purchased from 232 cities and private waterworks plants and 12,022,000,000 gal. pumped by 230 railroad pumping plants. A further analysis of the various uses of this water indicated that locomotives consumed 74 per cent, or 11,560,280,000 gal.; washing and filling boilers at terminals used 12 per cent, or 1,874,640,000 gal.; 5½ per cent, or 859,210,000 gal., was required by stationary power plants, and 8½ per cent, or 1,327,870,000 gal., was used for sanitary and domestic purposes.

Pumping Equipment

There has been a marked development in pumping equipment used in railway water stations within the past few years, not only in providing larger equipment to take care of the increased requirements for water, but in the type of pumping equipment and power units as well, the old steam plant, long considered most satisfactory because of its adaptability to the varying conditions found in railway water service and its ease of operation with unskilled labor, giving way to more modern equipment. The gasoline engine was a popular power unit for railway pumping stations as well as in the general industrial field for a time, but it was really never a serious competitor of steam except at the smaller stations and points where the cost of pumping with coal was excessive.

Electricity has become available in many communities at rates sufficiently attractive to warrant serious consideration, with the result that there has been considerable use of electric motor drive for pumping plants at water stations. Two factors have been responsible for this development. One is the increased number of points where electric power is available; the other is the economies which may be effected by the substitution of electric motors for steam and gasoline engines, especially when the motors can be operated by automatic control, thereby eliminating the expense for constant attendance.

Oil engines of the so-called semi-Diesel type are being used extensively in railway water service and are proving very economical and satisfactory power units. Oil engines operating on the lower grades of oil have been perfected to such an extent that their operation is practically as reliable as steam, although they are not as flexible when used with triplex and other positive displacement pumps. Failure to consider this feature has resulted in a few unsatisfactory installations. Oil engines have gained in favor as the centrifugal pump has been developed, as an oil engine and centrifugal pump make an ideal pumping unit. As an example of the increased use of oil engines, one of the largest manufacturers of this type of power unit in the United States sold 496 oil engines to railroads in the five years ending January 1, 1919. These engines represent a total of 9,827 h.p., 451 of the engines being 25 h.p. and under. Of this equipment the total h.p. sold in 1918 was 4,125, or 42 per cent of the total business of the previous four years, an increase over the average for the four years of about 290 per cent.

The use of oil engines and electricity has encouraged the further development of centrifugal and power pumps for use in connection with these power units and has resulted in a decided improvement in the efficiency of these pumps, which is especially true of the centrifugal pump. The cost for fuel will, of course, vary in different localities, but there is scarcely any place in the country where oil will not compare favorably with coal in operating a pumping plant. The economy of an electrical installation will, of course, depend upon the rate paid for electricity and the economies to be effected by decreased attendance.

Storage

Storage is an important feature of railway water service, but unfortunately it is a detail that has been much neglected in the past. Up to within the past few years the standard roadside tanks rarely exceeded 50,000 to 60,000 gal., although the standard roadside tanks today include those with a capacity of from 100,000 to 200,000 gal.

The necessity for greater storage is more evident at this time than ever before, with shorter hours of service and the increased wages of pumpers. The purpose of a water tank is to provide storage for a volume of water that will be ample for all requirements at a head sufficient to deliver the water in adequate quantity at the points required. The size and capacity of the tank and the height of the tower will be governed entirely by these two requirements.

The amount of storage available is an important factor in the operation of a railway pumping station, as the expense of operation can be doubled easily through the necessity for employment of additional pumpers by reason of the tank being too small to carry over the night hours, notwithstanding the fact that the equipment may be large enough to pump all of the water required during the day shift.

One important development along this line has been the use of treated timber for the construction of tanks. On certain railroads favorably situated the creosoted tank has proved a very profitable investment, as the first cost of construction has been much less than either an untreated tank of more permanent timber or the steel tank. While these tanks of treated timber have not been in service long enough to determine their useful life, there is every reason to believe that their life will be as great as that of the best untreated timber and the maintenance of a treated tank properly framed before treatment much less than either the untreated timber tank or the steel tank.

One decided advantage possessed by the modern conical bottom or hemispherical steel tank over the wooden tank or flat bottom steel tank is the removal of suspended matter carried by the water, through precipitation. There is a great need for a simple type of settling basin or filter for use in connection with the wood tank, as the removal of the suspended

*Abstract from a paper presented before the Western Society of Engineers, Chicago, on April 29.

matter from water supplied from a stream before it enters the locomotives will effect material economies in boiler repairs and washouts.

Water Treatment

There has probably never been a time when more interest has been displayed in the treatment of locomotive water supplies than within the past two or three years, the reason for the increased interest in water treatment being, of course, due to the greatly increased cost of fuel and boiler repairs and the importance of keeping locomotives in service. It is only too true that the treatment of locomotive boiler supplies has been neglected, as may readily be seen by comparing the amount of water treated with that requiring treatment. While there is no complete record of the number of water-treating plants in service on the railroads of the country, a fairly accurate estimate would be in the neighborhood of 600 plants, and from the known capacity of some 200 plants the average amount treated by each plant is 36,000,000 gal. per year, or approximately 21,600,000,000 gal. of treated water is used annually on railroads.

Assuming that 80 per cent of the total consumption, or 720,000,000,000 gal., of water is used by locomotives and power plants and that 50 per cent is of such quality that treatment would be economical, it means that we have less than 6 per cent of the treating plants in service that are needed. It is only necessary to check the reports of the results obtained from treating plants on those roads having them in service to be convinced that there are few investments that can be made on a railroad that will show quicker or greater returns than a properly designed and operated water-softening plant.

The United States Fuel Administration stated in its Engineering Bulletin No. 3 that it has been estimated that the use of hard water in a great number of the locomotive boilers of the country involved the consumption of 15,000,000 tons of coal more than would be needed if soft water only was used. There is no lack of data on the benefits to be derived from the treatment of water, nor apparently is there a lack of appreciation of the importance of water treatment. The fact that a larger percentage of the water conditions are not improved is evidently due to the fact that there is not a centralized responsibility for the quality of the water.

Water Waste

The Illinois Central has been making a campaign against water waste for the past five years, with the result that the saving during this period has amounted to $326,900, an average saving of $65,380, or nearly $200 per day. This saving has been accomplished by investigating every possible source of waste and keeping the importance of the subject constantly before officer and employee. The principal saving was made in the cost of city water, and efforts were directed chiefly toward correcting the waste of water purchased from outside parties, as the cost of water purchased is generally higher than that pumped by company forces, although large reductions were made in the consumption of company water as well as city water.

In order to keep a check upon the water purchased, all bills are entered on a card index for the purpose of comparing cost and consumption. Any increased consumption is noted and called to the attention of the officer having jurisdiction over the water at that particular point. If a satisfactory explanation cannot be given an investigation is made, which invariably results in disclosing and correcting the waste.

While many instances of conditions found and corrected in these water waste surveys might be recounted, it is sufficient to say that there are few water services on the average railroad where a saving cannot be made in water. While large wastes, such as overflooding tenders and tanks, bursted mains, etc., are important, as a general thing they do not require much attention to correct, as the loss is very apparent. It is usually the smaller leaks, such as at slop sinks, wash basins, toilets, urinals and other fixtures connected direct to sewers and drains, that cause the greatest waste and are the most difficult to correct because of the apparent insignificance of the loss and hidden nature of the waste.

It is not surprising that water waste on our railroads when one considers that the daily consumption is nearly two and one-half billion gallons, delivered through innumerable connections and under the control of thousands of employees, the greatest number of whom have no conception of the value of water. The fact that waste does occur is generally accepted, but it is a mistake to assume that the waste cannot be corrected or that correcting an occasional waste here and there solves the problem as it is only by continued effort that maximum results are to be obtained.

Organization

The general idea prevailing as to a water service organization is usually associated with the construction of water facilities rather than with the maintenance and operation. While the development of water supplies and the proper design and construction of water facilities demands careful study, operation and maintenance are of equal importance and continued trained supervision is necessary if economical results are to be obtained.

Providing water for locomotives and other railway purposes is a feature of railway operation that varies more widely than any other department. While several railroads have recently established water departments others still retain the old organization whereby the development, design and construction is handled by someone in the engineering department in connection with other duties and the maintenance and operation of water stations is handled by the supervisor or foreman of bridges and buildings as a part of his duties. The development of an adequate water supply, the economical and efficient design and construction of water stations together with efficient supervision over maintenance and operation are problems that require the undivided attention of a staff trained in water service work. The problems connected with water supply can best be solved with a separate organization charged with the sole responsibility for their successful operation. On most railroads the nucleus of a water department organization exists and the establishing of an individual department would not necessarily mean that there would be any material change in the division or local forces but rather that the local officers and the engineering department would be relieved of the duties incident to the design, development and operation of water facilities and the work placed under the direction of those trained along this particular line. The results obtained by roads that have established a water department have shown conclusively that there is an urgent necessity for an organization to handle this very important feature of railroad operation.

MR. MCADOO'S INFLUENCE.—Horatio Alger's heroes may have to look to their laurels, according to a Canadian paper. A call-boy of the Grand Trunk is likely to write his career as "From call boy to president." No clock watcher is this youngster. He has just drawn a pay check for two weeks for $109.35, the result of his overtime efforts as a call boy. At this rate he is drawing a salary on the basis of $218.70 a month, which is more than the chief clerk—his boss—receives. Several other officials admit that he is getting more than they, says our Canadian contemporary, "but they explain that the scale set in the McAdoo award is responsible for the anomaly."

Chamber of Commerce Discusses Railroad Problem

Business Men Show Understanding of Transportation Difficulties and Readiness to Assist in Remedy

"ONE OF THE LEADING FACTORS that enters into present high prices is the paralyzed condition of our railroads. The railroads of the country must be improved and made adequate to handle their share of transportation if we are to obtain any relief from advancing costs of life's necessities." This statement made by Homer L. Ferguson, president of the Chamber of Commerce of the United States in his address before the eighth annual meeting of that body held at Atlantic City, N. J., June 26 to 29, will emphasize the point of view taken by the members present on the important problem of the railroads.

The meeting in its four-day session covered no small amount of ground but it considered the railroad problem of sufficient importance to discuss it in a group session devoted entirely to that subject, as well as in other papers presented before the general and others of the eleven group sessions.

The Group Session on Railroads

Group I—the group session on railroads was held on Tuesday afternoon. It was presided over by George A. Post, president of the Standard Coupler Company, and chairman of the Chamber's committee on Railroads. Richard Waterman, who is also secretary of the Railroad Committee, served as secretary for the session. The session was well attended and an unusually lively discussion followed the presentation of the report of the Railroad Committee and the reading of a paper on Railroad Consolidation by John E. Oldham, of Oldham, Merrill & Co., of Boston, Mass., and one on Control of Freight Cars by Charles E. Lee, transportation manager of Ford, Bacon & Davis Corporation of New York. Abstracts of the committee report and the papers follow:

Report of the Railroad Committee

The report signed by George A. Post as chairman of the Railroad Committee, devoted the greater part of its length to a discussion of the manner in which the various important sections of the Transportation Act will probably work out in practice and to a consideration of the part the Chamber of Commerce played in securing the enactment of the provisions in question.

Attention was drawn to the work of the Chamber to transportation conference as followed out in the bill introduced in the Senate by Senator Joseph S. Frelinghuysen and to the fact that of the seven principles incorporated in Referendum No. 28, submitted in April, 1919, no less than five appeared in the final form of the Transportation Act.

In conclusion the report outlined the following as the work which still lies before the Railroad Committee and the Chamber of Commerce of the United States.

A National System of Transportation

The business men of the country recognize that as a result of the passage of the new act responsibility for providing the people with adequate transportation now rests on the Interstate Commerce Commission; and that an equally great responsibility rests on the business men themselves to aid the commission in every way possible. For the first time the commission is now in a position to develop for the United States a great national system of transportation privately owned and operated under a comprehensive system of regulation.

The national system of transportation proposed in the recommendation of the chamber would include five important groups of transportation agencies—the railroads, the electric inter-urban lines, the electric street railways, the public highways, and the inland and coastal waterways.

How is the commission going to bind these agencies together into a national system of transportation? This problem must be solved by our representatives in the national congress and in the Interstate Commerce Commission with the maximum of assistance we may be willing and able to give them.

From time to time the Congress will enact further legislation designed to accomplish this purpose; the Interstate Commerce Commission and other regulatory bodies will be charged by Congress with responsibility for putting this legislation into effect; but the business men of the country, the citizens whose prosperity and welfare depend in very large measure on their ability to secure adequate transportation, must take an active part in the work.

What can the business men do to help in accomplishing this purpose? Every individual busines man can organize the transportation department of his own business in such a way that in securing his raw materials and in shipping his finished products, he will help to assure the efficiency of our national transportation system by means of prompt loading and unloading of cars, heavier car loading, direct routing of freight, and in many other ways that are directly under his control as a business executive.

Local chambers of commerce and national trade organizations can help their members to realize that the transportation question is a great national question that should not be regarded from a local viewpoint; that the railroads are entitled to receive from shippers and passenger rates that will pay them a living wage for services performed; and that it is the duty of the public to insist that its representatives in city councils, in state legislatures and in the national congress shall establish by legal enactment a national transportation policy that is sound from a business standpoint.

And the Chamber of Commerce of the United States can aid in this work by collecting from every available source recent and reliable information on transportation questions that are of national importance, and placing this information at the service of the members of the Chamber; and can also assist by formulating sound business policies for the development and regulation of the various transportation agencies, submitting these policies to a referendum vote of the business men of the country, and when this vote is completed, reporting the result to the members of congress and urging that the principles approved by the chamber shall be enacted into law.

The Chamber of Commerce of the United States has worked along these lines almost from its inception. At the present time it has five working committees appointed to deal with different aspects of the transportation problem, viz., the Committee on Railroads, the Committee on Public Utilities, the Committee on Ocean Transportation, the Committee on Inland Waterways and the Committee on Highways. Under the proposed plan for reorganizing the administrative departments of the chamber which was adopted a year ago at the St. Louis meeting, the work of these five committees will be coordinated, or possibly combined, in the new Department of Transportation and Communication which will, as President Wheeler stated in his St. Louis address, "embrace associations related to railroad operation, telephone, telegraph,

public utilities and water transportation,—over-seas and inland."

Meantime, until the plans for the new department are put into effect, the Railroad Committee will continue to make a careful study of the work done by the Interstate Commerce Commission and by the railroads themselves to put the provisions of the Transportation Act into effect; and from time to time will report to the members of the Chamber the results of its study.

Railroad Consolidation

John E. Oldham, of Oldham, Merrill & Co., in his paper on Railroad Consolidation, discussed the difficulties the railroads had had in the past in financing their expansion, equipment, etc. He discussed particularly the necessity they had been brought to of financing through issues of bonds rather than through the sale of stock and showed how through lack of increased rates they had been unable to keep their securities of one kind and another up to a level that would appeal to the investor. He particularly drew attention to the fact that only recently bonds had been placed at rates as high as 7½ or 8 per cent. Discussing then the new Transportation act he said that even now people differed as to whether the provisions of that act would enable the railroads to attract funds and expressed his opinion that their hope lay especially in three kinds of provisions in the act, namely those relating to rate making, security issues, and consolidation.

Control of Freight Cars

Charles E. Lee, transportation engineer of Ford, Bacon & Davis Corporation, New York, presented a paper on this subject, based, he said, on a careful study of statistical information and on careful observation of methods used in the control of available freight cars from 1916 to 1919. From this study he drew the following conclusions:

1. That there is a necessity for a centralized control of supervision of the movement of freight cars.
2. That it may be ultimately desirable to have all freight cars not only used, but owned and maintained in common.
3. That the intelligent, unselfish co-operation of the shipper, with some central authority, is necessary to secure economical and efficient service from freight cars.
4. That it may be advisable for the various business interests to establish a central body to study methods for improving the handling of freight cars, to anticipate the necessities of shippers, and to present to the proper authorities in a comprehensive manner, any information or suggestion that may help to bring about greater efficiency.
5. That the enactment of inelastic laws and the use of co-operative methods to force the construction or require the more efficient handling of freight cars will inevitably fail to provide the necessary capital for the construction of the cars or brains for their control.

During the year 1917, to meet the emergency created by the World War, the shippers of the country worked unselfishly, patriotically and whole-hearted with a central organization established by the railroads, joined in a campaign and originated or adopted plans to secure a maximum of service from the available car supply. The result was an increase in 1917 of 32,021,003,264 tons of revenue freight carried one mile, with only 48,833 more revenue freight carrying cars than were owned the previous year; and it is interesting to learn that this result was accomplished by the shippers loading an average of only 1.9 tons more freight into each car that they were furnished, and the railroads increasing the average mileage made by each car loaded 10.7 miles.

If this effort had not been made and the car efficiency had remained the same as in 1916, it would have been necessary, in order to handle the increased business, to construct 150,349 new cars at an estimated cost of over $420,000,000, and in addition it would have cost $45,000,000 a year for interest, repairs, renewals and depreciation of these cars.

During the year 1918, with a continuation of the assistance of the shippers and the centralized control of freight cars, 37,934,887,077 more tons of revenue freight were moved one mile than in 1916. This traffic was handled with an increase in car ownership over 1916 of only 53,197 cars. This satisfactory result was secured by shippers increasing the average loading per car 3.8 tons and by the railroads increasing the average mileage made by each car loaded 17.2 miles.

Improved Car Efficiency

To have moved the originating tonnage of 1918 with no greater car efficiency than during 1916 would have required an increase of 165,799 in the number of cars owned, which would have cost over 465 million dollars. This would have entitled in interest, maintenance, depreciation and renewal expense of approximately $48,000,000, that would under existing laws have been an unnecessary burden on the business of the country.

Probably no year has ever presented more perplexing problems in railroad operation than 1919 with its unprecedented fluctuations in the demand for car service.

Early in the year, and in fact for the first six months, there was a large slump in business. The surpluses of freight cars in February amounted to over 450,000 cars. This changed to a shortage of 59,510 cars in October.

Statistics showing the revenue ton miles, originating tonnage and other necessary information for comparison with 1916 are not available at this time. However, it can be safely estimated that it would have required over 90,000 more cars than were owned, to move the tonnage that was transported during 1919 on the same basis of car efficiency as in 1916.

The advantages to the shippers, resulting from the common use of freight cars, are great, especially the economy of operation by the saving of light mileage and by the reduction of switching expense, and it is doubtful if shippers will again see, if they ever have seen, the necessity of restricting their loading to cars bearing certain initials when other cars are available. It is unreasonable and unfair to expect the road whose officials' good judgment have secured for it an adequate supply of cars to meet the requirements of their business to share their use with less provident roads. However, it is certainly an economic waste to have idle cars in the country, when there is freight awaiting transportation, or for cars to move empty when there are loads for them, so it would seem that an equitable solution of this problem might be the joint ownership of all cars.

If all cars were of a design that would meet the requirements of the shippers on each individual road, it would make no difference to any road if their own cars were never returned to their lines, provided that they are furnished with an equal number of cars owned by other roads, but with this one exception—under present methods the car away from home does not receive the same attention as to repairs and improvement as it does while on its owners' line.

Centralized Supervision

If all car repair facilities were owned jointly by all roads and maintenance directed by a central authority, this difficulty might be overcome. In the latter part of 1916 there was an acute car shortage. At that time and prior thereto, there was no established central authority for the control of freight cars owned by the railroads.

They were operated on what might be called a strictly ownership basis, which was first and foremost a recognition

of the fact that the car was the private and undisputed property of the road whose initials it bore. Rules were promulgated with this one thought ever in the foreground. From time to time some of these rules were enforced—punitive rules, high per diem rates and even fines for mis-use of cars by foreign roads, or roads using the cars of other roads which they did not own—but like "signs in dry times" all failed to attain their object: i.e., the return of the cars to owners when there was a general shortage of cars. Following the acute shortage in 1916 the American Railroad Association established a Commission on Car Service composed of expert transportation men, with plenary powers to control the freight cars owned by all of the railroads, and to get from them the most efficient service in moving the enormous volume of freight due to the World War. The personnel and functions of the Commission were taken over by the Railroad Administration as soon as it was established, and made a section of the Division of Operation; and it might be said in passing that it was indeed fortunate that the administration had at hand an established body of trained men to whom it could turn over so important a factor in railroad operation as freight control.

Comparison of Car Service Statistics, 1917 to 1919, Inclusive

Class 1 Roads Year ended	December 31, 1916	December 31, 1917	December 31, 1918
Total rev. frt. tonnage	2,177,247,081	2,270,035,053	2,305,868,245
Originating freight tonnage	1,202,000,067	1,264,015,725	1,263,265,890
Avg. daily origtg. tonnage	3,293,151	3,463,056	3,461,002
Rev. freight cars owned	2,253,111	2,301,947	2,323,262
Total rev. frt. ton miles	362,444,397,129	394,465,400,493	400,379,284,206
Loaded freight car miles	15,879,370,777	15,932,049,759	15,028,393,450
Total freight car miles	22,639,356,927	22,695,744,503	22,191,586,263
Number of cars used daily to move originating freight	144,437	140,204	130,112
Tons originating freight handled for each car owned	533.5	549.1	548.0
Number of cars owned to each car required to move originating freight	15.6	16.4	17.8
Ton miles per car per day	440.7	469.5	472.1
Tons per loaded car	22.8	24.7	26 6
Times necessary to load each car	23.4	22.2	20.6
Avg. number of days between loading	15.6	16.4	17.8

Thus we have had centralized supervision of freight cars since 1916. Under this plan of control, and with the co-operation of the shippers, the results as compared with those secured in 1916, prior to this arrangement, are worth more careful consideration as it seems to be a reasonable conclusion that results, once secured, can at least be equalled, if not improved, by a continuation of the same general policy. Statistics are generally uninteresting and averages and comparisons are often unsatisfactory. Nevertheless, it seems necessary to lay before you a few figures in order to illustrate certain points and support certain claims that I have made in this paper. For the year ending June 30, 1915, the total revenue freight tonnage originating on Class I railroads, as compiled by the Interstate Commerce Commission was 923,438,445 tons. The number of freight cars owned and used in moving this tonnage was 2,258,655. For the calendar year 1916, the revenue freight tonnage originating on these same roads increased a little over 20 per cent and the freight cars owned decreased 5,744. We find that in 1916 there originated on Class I railroads 1,202,000,067 tons of revenue freight and the number of tons handled one mile was 362,444,397,129. There were owned 2,263,111 cars used in revenue freight service. Each car carried a total of 533.5 tons originating freight during the year. 15.6 cars were owned for each car loaded, or in other words, it took an average of 15.6 days from the time each car was loaded until it was again under way with a new load. There was an average of 144,437 cars used every day and each car was loaded an average of 23.4 times during the year.

In 1916 each car was loaded with an average of 22.3 tons. With the aid of the shipper this average was materially increased in 1917, and again in 1918. All cars owned moved a total of 22,639,336,927 miles, of which they moved loaded 15,879,370,770 miles, or approximately 79 per cent of the total freight car mileage.

Every freight car owned in the revenue freight service carried 440.7 tons one mile every day in the year, Sundays and holidays included. This represents the all inclusive factor of car efficiency.

In 1917 there were 1,264,015,725 tons of freight originating on those same railroads, and the number of tons carried one mile was 394,465,400,493, an increase over 1916 of 8.8 per cent.

The number of freight cars owned by the same carriers increased 48,836, or 2.1 per cent. Each car carried a total of 549.1 tons, an increase of 2.9 per cent; 140,204 cars were used daily to move this increased tonnage, a daily decrease of 4,233 cars, or 3 per cent.

We find that each car was loaded with 24.7 tons, an increase of 8.3 per cent. Altogether making the number of tons carried one mile by each car daily 469.5 tons, an increase of 6.5 per cent in car efficiency.

In the calendar year 1918, there originated on these same roads 1,263,268,245 tons of revenue freight and the number of tons carried one mile was 400,379,284,206, an increase over 1916 of 10.5 per cent.

There were owned 2,323,362 cars used in revenue service by these same carriers, an increase of 3.1 per cent. Each car carried a total of 548.0 tons, an increase of 2.7 per cent; 130,112 cars were used daily to move this business, a decrease of 14,325 cars daily.

Each car loaded had 26.6 tons to move, an increase of 3.8 tons or 17.6 per cent. We find the all inclusive factor of car efficiency the number of tons carried one mile by each car to have increased 7.1 per cent.

The freight car is a large factor in the expense of railroad operation, and there is no more perplexing problem than its efficient control in order to secure from it a maximum of service. . . .

Co-operation by Shippers

There is no other item in railroad operating expenses that can be so greatly reduced by co-operation between the shippers and the railroads as the handling of this most important unit; and if the shippers and the railroads will work harmoniously together, the number of tons carried every day can be substantially increased.

At no time in our history have the shippers been more vitally interested, not only in the efficient, but in the economical operation of *all* railroads.

Under the Transportation Act now in force the rates that a shipper must pay depends upon the cost of operation of all the railroads in the entire section in which his industry is located. The uneconomical operation of any railroad in that section may adversely affect his freight rates, even if his goods do not pass over that road, and even if all of the roads over which his goods do move, including the one on which his plant is located are efficiently and economically operated.

The shipper has a new burden of responsibility which he cannot entirely escape, except at an increased cost of transportation. He is as never before interested directly in the transportation problem as a whole; and this problem cannot be satisfactorily solved in a narrow and selfish way. The public is too vitally interested in securing adequate transportation facilities to be satisfied with any solution other than that which provides a national transportation system in which all methods of transportation are so co-ordinated as to be used to the fullest practicable extent. . . .

If the shippers would co-ordinate their efforts at this time and would authorize some central body to study the transportation problem as a whole and then would work with the Commission on Car Service in matters pertaining to car ef-

ficiency, it would help the railroads to furnish the maximum of service with the facilities now available. It would also help the Interstate Commerce Commission to decide fairly what additional expenditures should be allowed for the construction of new equipment.

Discussion at the Group Meeting

It was expected that the discussion at the group meeting would be interesting, but the ideas presented and the oratory used to present them exceeded all expectations, making the group session probably the most lively of all those held Tuesday afternoon. The speakers in no mistaken terms told what they thought of the difficulties encountered through labor troubles, low morale and lack of discipline. Several speakers from the Central West and the Pacific Coast, in particular, spoke of the difficulties their sections were having for lack of cars, one speaker from Bellingham, Wash., drawing attention to the fact that in his city no less than $6,000 in wages was being lost daily because it was impossible even with the aid of additional shipping to load lumber on cars. A clean cut sympathy with the railroad managers was evidenced in the discussion and nearly all of those who spoke emphasized the great desirability of the shippers co-operating in every way possible with the railroad officers. Frank W. Noxon, secretary of the Railway Business Association, brought out the point that one cure for the situation lay in the proposal now under consideration by the Interstate Commerce Commission to permit increases in rates. The need of prompt action is paramount, he said, so that investors may understand whether or not there will be sufficient attraction in railroad securities in the near future. As soon as this point is cleared up the sooner the railroads will be able to start buying cars and locomotives and the better opportunity they will have to overcome the delays in deliveries through labor difficulties or shortage of materials.

Transportation in Relation to Production

This was the title given to the general session of the meeting on Wednesday morning, April 28. Three papers were presented, one on Railroads, by George A. Post, chairman of the Chamber's railroad committee; one on Electric Railways, by John H. Pardee, president of the J. G. White Management Corporation, and president of the American Electric Railway Association, and the third on Highways, by George M. Graham, general sales manager of the Pierce-Arrow Motor Car Company, Buffalo, N. Y.

Address of George A. Post

Is this new law (the Transportation Act) perfect in its every feature? Undoubtedly not. Any piece of legislation attempting to cover so many details, affecting many diverse interests, making provision for so many prospective contingencies, so tremendous in its effect upon our national life can only be the best possible composite of the views of many diverging minds. Compromises had to be effected, proposals possibly wise had to be eliminated to avoid a legislative impasse. Beyond doubt it is the best legislative program of railroad regulation ever enacted, more constructive and less repressive.

It was the expressed opinion of the Chamber of Commerce of the United States, that the Interstate Commerce Commission should be relieved of some of its burdens while others were added, and a new body called the "Transportation Board" should be created to perform many important functions which in the new order of things required to be done by a governmental agency. Congress thought otherwise, and placed more duties upon the Commission, and increased the number of augmented responsibilities.

It was the right of Congress to so decide and there is no complaint about it. Everybody has faith, or should have faith, that the Commission, now clothed with all the powers it asked for, and much more beside, will proceed to exercise its great powers with an eye single to the public welfare. In the performance of its herculean task the Commission needs, and is entitled to, the sympathetic, honest-minded, square-dealing and generous co-operation of all our people.

As a federation of business bodies the Chamber of Commerce of the United States has brought before it by the new Act an opportunity to serve the organization members. This is particularly true of the community associations. Experience long ago fixed upon the local community as the population unit for dealing with transportation. Shippers when co-operating have had the local traffic bureau as their agency. That practice will continue. To the former scope, however, a new scope is now added. The primary if not the sole function of the traffic bureau in the past has been to deal with matters arising out of the use of the existing railway plant. From now on, in addition to this function, such bureaus, or at any rate the organizations which maintain such bureaus, will have another function—that of dealing with matters related to the enlargement of the railway plant for adequate service.

Precisely what work the Chamber of Commerce of the United States can now best undertake, it is perhaps too soon to define. Each community, each region, has its peculiar problems, but they all have also much in common, one with another, and it is sufficient at this time to suggest that the Chamber can in a valuable way lend its good offices in aiding the constituent bodies to study the problem and in giving central clearance to their several experiences for the ultimate benefit of the Interstate Commerce Commission.

The keynote of this great assemblage of the representatives of our nation's business is Production. In order to increase production we must make a corresponding increase in railroad facilities. At this very time the railroads are carrying a greater tonnage than ever before, greater even than during the war. The demands upon them are increasing by leaps and bounds, and they are meeting them as best they may with facilities badly impaired, and badly needing vast additions and betterments. They are short today at least 4,000 locomotives and 200,000 freight cars, and 8,000 passenger cars.

The railroad officials are at this time naturally more anxious than ever to meet the demands upon them. Even if they had the money now, which they have not, it would be some time before they could add substantially to their equipment. Some of the strong roads have already contracted for new equipment, but not more than half they need, because of the restricted money market and the high cost for borrowings. Meantime, while the rates are being discussed and fixed by the Interstate Commerce Commission; means of access to the government revolving fund (provided for in the new law) are being arranged, and a modicum of relief is afforded by the delivery later on of such equipment as has already been ordered, it is the duty of the public to be good humored, patient and considerate. Those who receive cars for lading must load them quickly to their capacity, and consignees must unload with greatest possible celerity. We must not expect miracles simply because the roads have been turned back to their owners for operation. We have a right to expect, and do expect, that the railroad officials will do all that is humanly possible to meet the emergency. We also have the right to expect and insist that the railroad employees will co-operate with their officers and keep the wheels rolling, and not paralyze commerce by quarrels among themselves, which, in effect, is a strike against the public, whose Congress has established a tribunal for the fair, impartial adjudication of labor disputes.

Having made mention of the creation of the "Railroad Labor Board," I am impelled at this moment to refer to the attitude of organized labor toward that provision, which is deeply to be deplored. So bitter was their opposition that

after the passage of the Transportation Act, publication was made by labor leaders of their intention to mark for condign punishment at the polls all senators and representatives who voted for the measure. And why? Because provision was made for including the "Public" in the tribunal which should deal with the demand of labor.

The theory was pressed that only the representatives of the officials of the railroads and the representatives of the employees should determine labor disputes; and whatever their conclusions were, the public, which pays the bills, should have nothing to say. When did it become a crime, punishable by official death, for a representative in Congress to vote in defense of the rights of the public? This National Chamber of Commerce represents a large part of the public, and it seems entirely proper that an appeal should be made to this body, and to all those whom you represent, to see to it that no congressman or senator is defeated because he upheld the right of the public to officially participate in deliberations and decisions, involving hundreds of millions of dollars additional wages to railroad employees, which it must pay in the shape of increased rates and fares.

I do not deny the right of organized labor to vote for or against any man for any reason; but I do assert that if and when organized labor demands of its membership that a senator or representative shall be driven from public life because he stood for public representation upon the Railroad Labor Board, every mother's son of the Chamber of Commerce of the United States owes it to himself, to his country and to the target of organized wrath, to see to it, that courageous, fair, public service shall have its reward in militant support at our hands. As for me, my affiliations are with the Democratic party, but I here and now declare that in the congressional district and state where I vote, I shall ardently support for re-election, regardless of the political ticket upon which they run, the man or men who in Congress, refused to bend the knee of subjection when threatened with defeat therefor and manfully maintained their convictions by voting "Aye" upon the "Transportation Act of 1920."

Men of the Chamber of Commerce: "Go thou, and do likewise!" No threats were made against those who voted "No." The defeat of no Congressman is sought because he voted "No." Freedom of thought and action is conceded without a question to those who could not or did not favor the Act. About some of its provisions, there is room for honest differences of opinion, and doubts as to their wisdom or efficacy. The fact remains that every letter and line of the Act was an earnest attempt made under many embarrassments to solve a difficult problem. Certainly the railroad executives did not get much that they wanted—much that they opposed was included therein. The Chamber of Commerce failed to write into the new law all that it desired. The vigorous and vigilant Warfield association had its ambitious plan drastically curtailed. The Interstate Commerce Commission revised some of its original recommendations. Thoughtful students of finance are disappointed in the failure of Congress to pay heed to some of their proposals. But at all times the animating thought of those responsible for the final form of the Act, was the adequate service of the public, with every safeguard they could think of for its welfare included therein.

Shall those in Congress who thus labored, who thus staunchly stood the gaff, bite the dust as their requital? It is up to us.

Highways

The remarks on this subject by George N. Graham, general sales manager of the Pierce-Arrow Motor Car Company, dealt only in part with railways.

Ships, railroads and motor trucks constitute the great transportation trinity which distribute production, each having an equally important place in the general transportation scheme, said Mr. Graham.

The steel rail has ever been the herald of development, but locomotives and cars cannot travel beyond its bounds. Experience has shown that the profitable operation of the railroad is largely a matter of bulk shipment over extended distances.

Motor trucks properly applied can aid the railways in the immense task of serving 105 million persons, spread out over 3,000,000 square miles. We have never simultaneously used all three kinds of transportation to top efficiency.

The old idea that prosperity in the railroad business was to be defined alone in terms of tonnage is passing. We are all learning that volume of business does not in itself assure profits.

Formerly the railroad in its capacity as a public carrier was not in a position to refuse unprofitable freight. No other medium was available to have it.

Temporarily our railroads have reached the limit of their capacity. They can have no greater volume. The *Railway Age* says they are 712,400 freight cars short, and only 300,000 can be built yearly. There is an estimated shortage of 50 per cent on locomotives. Five years is suggested as the minimum time in which railroad facilities can be brought to normal. Meantime is it not sound logic that present railroad equipment should be limited to protfiable work, leaving the short haul, L. C. L., to other mediums?

No rational person considers the motor truck a rival of the railroads in long haul traffic. In occasional emergency service it has performed wonders, but the labor factor eliminates it for long distance work. A modern freight train will move 3,000 tons with a crew of six men. To move the same tonnage by motor truck would call for 600 5-ton trucks, at least 600 drivers and possibly 600 helpers.

That there may be wisdom in a re-arrangement of our present methods is suggested by a brief analysis of the short haul steam railways of the United States. This class I have limited to railroads having a maximum trackage of 100 miles, alhtough many lines with more than this mileage render a short haul service.

The figures were obtained from the Short Line Association and are accurate as of April 1. They show that 659 roads have 100 miles, or less, trackage. Their total mileage is 16,860, an average of 25.6 miles per road. Their total number of locomotives is 2,491, an average of 4 locomotives per road. 133 roads have but one locomotive. 186 roads are less than 10 miles in length, their average being 6.4 miles. 410 roads are less than 25 miles, their average being 12.6 miles.

A foremost railroad authority has frankly conceded that no longer will such lines be constructed either as individual lines or branches of trunk lines. The future tendency will be to substitute other agencies.

The great strain in our modern transportation systems is to be found at the terminals. Freight cars move on an average of only 25 miles per day. We also have the spectacle of something like 2,400,000 freight cars with an average capacity of 50 tons carrying seldom as an average more than 32 tons in carload lot shipments and 7 tons in L. C. L. shipments.

If we could, by abolishing terminal delays, make the daily average mileage 37½ miles per car, there would be a 5 per cent increase in efficiency, a possible equivalent of an addition of 1,200,000 cars. . . .

Railroads Discussed at Other Group Sessions

The railroad problem came in for attention at several of the other group sessions as well as that dealing particularly with the railroads reported above.

Transportation and Production

In speaking before the Group Session VII, the Business and Daily Press, Roy V. Wright, managing editor of the

Railway Age, spoke in part as follows on the subject of Transportation and Production:

Railway transportation is today the limiting factor in production in this country. This condition, acute as it is in many of the industries, promises to continue for a considerable time. The underlying causes for this shortage of transportation are the lack of sufficient equipment and facilities and the low morale which now exists among railway workers.

In addition to the vast sums which must be spent for ordinary maintenance and to take up deferred maintenance caused by war conditions at least $6,000,000,000 should be expended from capital account within the next three years to provide equipment and facilities needed to put the roads in normal condition for handling the steadily growing traffic.

Over regulation has killed the credit of the roads. The new Interstate Commerce Commission must see that this condition is remedied and that the roads are allowed to charge such rates that investors will be encouraged to buy their securities and help them to finance the additions which must be made if the roads are properly to serve the public. If this is not done, production will continue to be restricted and the progress and prosperity of the country will be seriously curtailed.

Unfortunately, even if the funds were available immediately, it would take some considerable time for the railroads to secure the necessary equipment and enlarged facilities. Meanwhile the public in its own selfish interest should put forth every effort to co-operate with the roads in order to secure the greatest possible use from the existing equipment and facilities. Excellent results were obtained in this way during the war but unfortunately there has been a falling off in this co-operation since the signing of the armistice. It is just as necessary today, if not more so, than it was then and the business papers can do much to revive the former intense spirit of co-operation.

The low morale among the employees is not very different from that existing to a greater or less extent throughout the business and industry of this country. Increased production and a lower cost of living will not be brought about until this condition is changed. The business papers have a distinct responsibility in educating the men in their respective fields to the necessity of doing their part in raising the morale of the forces generally.

The delay in passing the Transportation Act and returning the roads to their owners kept the railways out of the market until recently and they are now finding great difficulty in getting deliveries on such materials as they need. Other industries, less essential to the prosperity of the country as a whole, would do well to allow the railroads priority on such materials as they need. If they do not they will shortly find themselves hampered because the railroads, lacking these materials, will be unable to handle their business.

Port and Terminal Facilities as a Factor in Production

The American railroad as a medium of transportation has made great progress in the past two decades and the American manufacturer can look forward to having his increased output carried with speed and economy from the point of manufacture to tidewater for shipment abroad, said B. F. Cresson, Jr., consulting engineer, New York, New Jersey, Port and Harbor Development Commission, New York, speaking before Group II—Shipping.

The principal point of congestion, expense and delay in the transportation system between this country and foreign countries is at the point of contact between the railroads and the ships, and this point is the neck of the bottle in the American transportation system.

It is no exaggeration to say that the tidewater terminals at the great American ports have not kept pace with the development of railroad transportation or with the improvement in shipping, and the American manufacturer must face this situation squarely and see to it that steps be taken whereby the delays that now occur in the transfer of his products between rail and water carrier and the expense incident to this transfer are reduced.

With the present shortage of railroad cars it is little short of an economic crime that it is necessary to hold cars within the terminal districts for from three days to a week and more, acting as storehouses for freight awaiting an opportunity and a favorable location to deposit their contents convenient for the ship. It is essential in the modern terminal that provision be made for the quick discharge of freight from railroad cars and the quick release of railroad cars in order to perform their proper function, which is that of transporting goods. Demurrage receipts to the railroads by no means compensate for the loss of the use of rolling stock, and these charges should be considered not as revenue producers to the railroads but as a compelling medium for the release of cars.

I. C. C. Creates Bureau of Service

WASHINGTON, D. C.

HERETOFORE the principal functions of the Interstate Commerce Commission have had to do with the relations between carriers and shippers and questions relating to the charges for transportation. Under the new transportation act it is given authority and responsibility over matters pertaining to the adequacy of transportation service and the relations of carriers to each other for the purpose of insuring that the entire railroad plant may be developed and utilized in a way to respond to the transportation needs of the country. To assist the commission in performing its new functions of this kind it has created a Bureau of Service and put in charge of it as director a practical railroad officer, F. G. Robbins, formerly general superintendent of the Erie at Chicago and later assistant general manager of the Transportation Corps of the A. E. F. in France. No announcement was made by the commission at the time, but Mr. Robbins assumed the duties of his new office on April 15.

As head of this bureau Mr. Robbins will have general charge of car service matters and of a car service section to be organized and will advise and assist the commission in relation to many other matters in which operating conditions are a factor, such as the exercise of its powers with respect to the joint use of terminals, the issuance of certificates of necessity and convenience on applications for authority for new construction or the abandonment of service or facilities, the routing of unrouted freight, projects of consolidation or joint operation of connecting carriers and the development of plans which will reduce interruptions to transportation such as those resulting from car shortage, congestion or inadequacy of terminals. Probably other sections will be created within the bureau.

The new powers of the commission over matters pertaining to operation, which are especially broad under such conditions as in its opinion constitute an emergency requiring immediate action, are included in Section 402, the "car service section" of the new act, which defines car service to include the use, control, supply, movement, distribution, exchange, interchange, and return of locomotives, cars, and other vehicles used in the transportation of property, including special types of equipment, and the supply of trains. It is made the duty of the carrier to furnish safe and adequate car service and to enforce just and reasonable rules with respect to car service, which may be required to be filed with the commission and the commission may itself establish reasonable rules, regulations and practices with respect to car service, including the compensation to be paid for the use of locomotives and cars.

The emergency powers of the commission as stated in Section 402 of the act are in part as follows:

"Whenever the commission is of opinion that shortage of equipment, congestion of traffic, or other emergency requiring immediate action exists in any section of the country, the commission shall have, and it is hereby given, authority, either upon complaint or upon its own initiative without complaint, at once, if it so orders, without answer or other formal pleading by the interested carrier or carriers, and with or without notice, hearing, or the making or filing of a report, according as the commission may determine:

"(a) To suspend the operation of any or all rules, rgeulations, or practices then established with respect to car service for such time as may be determined by the commission;

"(b) To take such just and reasonable directions with respect to car service without regard to the ownership as between carriers of locomotives, cars, and other vehicles, during such emergency as in its opinion will best promote the service in the interest of the public and the commerce of the people, upon such terms of compensation as between the carriers as they may agree upon, or, in the event of their disagreement, as the commission may after subsequent hearing find to be just and reasonable;

"(c) To require such joint or common use of terminals, including main line track or tracks for a reasonable distance outside of such terminals, as in its opinion will best meet the emergency and serve the public interest, and upon such terms as between the carriers as they may agree upon, or, in the event of their disagreement, as the commission may after subsequent hearing find to be just and reasonable;

"(d) To give directions for preference or priority in transportation, embargoes, or movement of traffic under permits, at such time and for such periods as it may determine, and to modify, change, suspend, or annul them. In time of war or threatened war the President may certify to the commission that it is essential to the national defense and security that certain traffic shall have preference or priority in transportation and a commission shall, under the power herein conferred, direct that such preference or priority be afforded.

"(16) Whenever the commission is of opinion that any carrier by railroad subject to this act is for any reason unable to transport the traffic offered it so as properly to serve the public, it may, upon the same procedure as provided in paragraph (15), make such just and reasonable directions with respect to the handling, routing, and movement of the traffic of such carrier and its distribution over other lines of roads, as in the opinion of the commission will best promote the service in the interest of the public and the commerce of the people, and upon such terms as between the carriers as they may agree upon, or, in the event of their disagreement, as the commission may after subsequent hearing find to be just and reasonable.

"(17) The directions of the commission as to car service and to the matters referred to in paragraphs (15) and (16) may be made through and by such agents or agencies as the commission shall designate and appoint for that purpose. It shall be the duty of all carriers by railroad subject to this act, and of their officers, agents, and employees, to obey strictly and conform promptly to such orders or directions of the commission, and in case of failure or refusal on the part of any carrier, receiver, or operating trustee to comply with any such order or direction such carrier, receiver, or trustee shall be liable to a penalty of not less than $100 nor more than $500 for each such offense and $50 for each and every day of the continuance of such offense, which shall accrue to the United States and may be recovered in a civil action brought by the United States.

"(18) After ninety days after this paragraph takes effect no carrier by railroad subject to this act shall undertake the extension of its line of railroad, or the construction of a new line of railroad, or shall require or operate any line of railroad, or extension thereof, or shall engage in transportation under this act over or by means of such additional or extended line of railroad, unless and until there shall first have been obtained from the commission a certificate that the present or future public convenience and necessity require or will require the construction, or operation, or construction and operation, of such additional or extended line of railroad, and no carrier by railroad subject to this act shall abandon all or any portion of a line of railroad, or the operation thereof, unless and until there shall first have been obtained from the commission a certificate that the present or future public convenience and necessity permit of such abandonment.

"(21) The commission may, after hearing, in a proceeding upon complaint or upon its own initiative without complaint, authorize or require by order any carrier by railroad subject to this act, party to such proceeding, to provide itself with safe and adequate facilities for performing as a common carrier its car service as that term is used in this act, and to extend its line or lines."

Continued Freight Congestion Because of Strikes

THE RAILROAD STRIKE situation in the east has settled down to a slow campaign for the re-establishment of normal conditions in the large freight yards on the New Jersey side of New York harbor. Passenger trains have been restored to their normal number and regularity. In the freight service there seems to be little or no trouble among road trainmen, and except in the vicinity of New York the situation appears to be quiet. But the New York terminal yards are not yet able to handle more than half of their normal movement of freight, and considerable groups of strikers are still trying to keep up their agitation. Small groups are returning to work, now and then, and considerable numbers of new men have been hired; but from the shippers' standpoint the situation is still serious, not to say desperate. With the constantly heavy movement of perishable freight and live stock, and the long-continued congested condition of all freight facilities (because of conditions not due to the strike), a yard which is only 50 per cent efficient is moving much less than 50 per cent of the non-perishable commodities; which, of course, means costly inconvenience to shippers and large losses both to shippers and carriers.

The certainty of the collapse of the strike was apparent, even on the New Jersey waterfront, by Friday, the 23d; and the General Managers' Association refused the appeal of Edward A. McHugh, chairman of the committee representing the strikers, for further leniency in restoring men to duty without discrimination, and with their seniority rights undisturbed. The strikers' committee then appealed to the mayors of New Jersey cities, who were in convention at Atlantic City, but the mayors gave them no encouragement. One proposition of the strikers was to return to work for a month pending the decision of their demands by the government Labor Board, but the railroad managers would not listen to it.

On Sunday, the 25th, the Brotherhood of Railroad Trainmen expelled about 2,000 of its members by revoking the charters of locals in Jersey City and adjacent cities; these representing employees of the Erie, the Pennsylvania, the West Shore (New York Central) and the Hudson & Manhattan.

The very good pay which trainmen and yardmen have been receiving of late has its influence in prolonging the strike as may be seen from the remark of one of the strikers

to a New York reporter. Replying to a question, he said:

"We'd go back right now if we could retain our priority; but as we have to go back as new men to new jobs, what is the use going back until we have to? We may as well hold out until we are flat broke, because something may happen in the meantime. We are not broke yet. Grocers and butchers aren't refusing to give credit to strikers, and landlords are not collecting from them either."

The roads employing college students and other volunteers as brakemen on passenger trains, dismissed most of these volunteers on Monday the 26th.

On the 26th the attorney general sent to New York from Washington one of his assistants, C. B. Ames, who, at the request of the Merchants' Association of New York City, began an investigation of the general industrial situation in New York, including not only the railroad strike but that of the longshoremen. In this move the Merchants' Association was joined by the Chamber of Commerce and other mercantile bodies. Refusal of certain trucking contractors to move freight to or from piers where non-union men are at work was one of the things complained of, this boycott having interfered seriously with the distribution of food. On Wednesday Mr. Ames announced that prosecutions of men believed (from evidence in hand) to be responsible for the railroad strike would be begun at once. He said that the identity of those responsible had been established by agents of the Department of Justice, and their names would be placed before the Federal Grand Jury in New Jersey. Similar prosecutions, he said, are now being pushed against insurgent leaders in Chicago, New Orleans, Salt Lake City and Los Angeles, the government in each instance holding that the Lever act was violated through interruption in the distribution of foodstuffs and other necessaries of life by the concerted action of the strikers.

The Hudson & Manhattan, operating the tubes between Manhattan and New Jersey, resumed full operation in the day time (but not at night) on Tuesday of this week. This road was obliged to organize new crews for practically the whole of its service, about 450 men.

The Baltimore & Ohio lines on Staten Island—the Staten Island Rapid Transit Company, which does a large commutation passenger service — resumed full passenger train service on the 26th.

From Pittsburgh, Pa., it was reported on the 23d that the charters of 12 locals of the Brotherhood of Railroad Trainmen had been revoked.

Several hundred freight handlers who had been on a strike of their own returned to work on the Jersey City waterfront on the morning of the 22d, their demand for $6 a day for eight hours instead of $4.50 for 10 hours having been partly granted.

The Chicago Situation

Conditions in the Chicago switching district incident to the walkout of members of the Chicago Yardmen's Association almost a month ago have been steadily, although slowly, improving during the past week. Many of the strikers have found employment in other industries, some of them obtaining wages as high as a dollar an hour as common laborers on government construction work in one of the western suburbs. Consequently they have refused to return to railroad service for the wages which they were receiving at the time of the walkout. Many more have found that the strike has so tied up industry in Chicago that by their own action they have eliminated many of the opportunities for obtaining employment elsewhere. The arrest of the heads of the Chicago Yardmen's Association and United Enginemen's Association has left the strikers without leaders, and the gradual subsidence of the strike seems assured. As each day passes, striking switchmen are returning to their work in small numbers, although at the present time the expiration of many of the ultimatums issued by the railroads has necessitated the return of these men as new employees. On several of the roads in the Chicago district enough men have been hired or brought in from other points to permit the announcement that no more employees are desired; and if this development continues, as it is likely it will, the strikers will find that railroad service has been closed to them.

The chronological story of the strike, continuing the report in the *Railway Age* of April 23 (page 1265), is as follows:

Thursday, April 22.—The only development was the calling of another meeting by John Granau. Representatives of the government, the Illinois Manufacturers' Association, the General Managers' Association and the brotherhoods were invited to attend the meeting, but all declined. Traffic conditions continued to improve. Approximately 80 per cent of the normal number of switch crews operated 605 engines in the Chicago district or 160 less than are operated under normal conditions. Local officers of the Brotherhood of Railroad Trainmen, in statements issued to the press, claim that they are being deluged with requests from returning strikers for reinstatement in the brotherhood and from local organizations requesting a suspension of judgment on the revocation of their charters.

Friday, April 23.—The meeting called by John Granau terminated without definite action. Granau, closely watched by federal operatives, addressed the mass meeting and, after obtaining the unanimous opinion of the men present that he had not ordered them on strike nor could he order them back to work, left the matter entirely in the hands of the audience. When it was found that no representatives of the general managers or of the federal authorities were present the meeting adjourned quietly with no action taken. The statement issued in behalf of the railroads said that approximately 83 per cent of the normal number of crews operating in the Chicago district were working. The total number of strikers returned to work was increased to 686. Live stock cars moved into the stock yards Friday totaled 941, an increase of 460 over the same day last year. Movement of live stock eastbound was normal, 265 cars; and of meat 206 cars.

Saturday, April 24.—John Grunau, president of the Chicago Yardmen's Association, with 49 other leaders of that organization and the United Enginemen's Association were arraigned before United States Commissioner Mason and by agreement their cases were postponed until May 3. All of the men were allowed their freedom after they had been warned by federal officers not to participate in any meetings of the strikers or to act in an advisory capacity to the men. The Saturday statement issued on behalf of the railroads gave the number of strikers who had returned to work as 1,036. In addition there were on duty 773 recently employed switchmen or men brought into the Chicago district from other points, bringing the total number of switchmen on duty to 1,809. The number of switching crews in service totaled 651, as compared with 630 the previous day. The slight increase in the number of crews on duty as compared with the large increase in the number of men available for duty was due to the fact that the returned strikers and new men were relieving employees who had been doing emergency duty. Receipts of live stock, 401 cars. Fresh meat and live stock each continued normal, 206 cars of meat and 400 cars of stock being moved. The movement of coal inbound totaled 1,073 cars, although industries in many parts of Chicago were threatened with closing because of a fuel shortage in the Chicago district.

Sunday, April 25.—There was practically no change in the situation at Chicago on Sunday. The return of 16 additional switchmen brought the total number of returned strikers to 1,052. The number of men employed or brought in from other points during the day totaled 67, making 840 switchmen of this class on duty in the Chicago district, and a total of 1,892 switchmen at work.

Monday, April 26.—The gradual improvement continued; total number of returned and new switchmen, 1,983; including 45 returned strikers and 129 new men employed or brought into Chicago from other points. The movement of coal during the past 48 hours had increased materially, 2,422 carloads being brought into the Chicago district to relieve what threatened to become a serious situation in so far as the city's supply of fuel was concerned.

Tuesday, April 27. The only development in the strike situation on Tuesday other than the gradual return of men and the improvement of conditions in freight traffic generally, was the widening of the breach between the railroad managers and striking yardmen. The railroads have openly announced their policy of hiring new men and of maintaining the provisions of the ultimatums which have been issued. In this policy of taking on new men the railroad managers have been aided by officers of the Brotherhood of Railroad Trainmen, and the Switchmen's Union of North America. The statement issued on behalf of the railroads outlined the traffic and labor situation in the Chicago district as follows:

"Indicative of the industrial traffic conditions at Chicago is the situation prevailing today on the Indiana Harbor Belt and the Chicago Junction. On the former, practically every industry was working yesterday and continues so today. The road handled approximately 59 per cent of the business handled on the same day last year, and indications are that this condition will continue to improve. The Chicago Junction received 837 cars from connections yesterday for industries on its rails as compared with the normal receipts of 1,200 cars on the same day last year. The outbound movement on the Junction was approximately 60 per cent of normal. In addition, 757 cars of live stock were moved into the stock yards over the Chicago Junction. In general this road is now handling 50 per cent of its normal traffic.

"The number of switchmen on duty was increased to 2,214, an increase of 231 over yesterday. The total number of returned strikers is now 1,146, of new men employed 359, of men brought in from other points 709."

Wage Hearings Before Railroad Labor Board

Demands of Labor Organizations Originally Presented to Railroad Administration Repeated

THE RAILROAD LABOR BOARD this week continued its public hearings at Washington on the wage demands originally filed with the Railroad Administration by the various organizations of railroad employees. S. E. Heberling appeared on April 22 for the Switchmen's Union and L. E. Sheppard for the conductors. Warren S. Stone appeared on April 23 for the engineers, Timothy Shea on April 24, 26 and 27 for the firemen and hostlers and W. S. Carter on April 28.

In each case the schedule presented was that which had been submitted to the Board of Railroad Wages and Working Conditions, except that the engineers had not made a formal demand upon the Railroad Administration, and the statements made were largely a brief repetition of the testimony that had been presented before that board, with a request that further increases in the cost of living since the proposed scales were made up be taken into consideration.

S. E. Heberling Speaks for Switchmen's Union

S. E. Heberling, president of the Switchmen's Union, and L. E. Sheppard, president of the Order of Railroad Conductors, presented their requests for increased wages to the board on April 22. Mr. Heberling resubmitted the scale of proposed rates which had been presented to the Railroad Administration, and said that the rules he had asked for were the same as those proposed by the Brotherhood of Railroad Trainmen. His proposed scale applying east of the Rocky mountains provided for a rate of $8 a day for night foremen, $7.50 for night helpers, $7.50 for day foremen and $7 for day helpers. He also asked differentials above these rates for the Rocky Mountain district and that switchtenders be given the pay of helpers. Mr. Heberling said that switchmen, being exposed to all kinds of weather conditions, are put to great expense on account of clothing, which has increased in price from 100 to 200 per cent, and that when a helper's wage was $3.50 a day he could buy for that a pair of shoes which would last two months, whereas today the same pair of shoes costs him $10, or two days' pay. He said the cost of living has increased 120 per cent since 1913 and the purchasing power of a dollar is now only 43 cents, and therefore the switchman's standard of living has been reduced, and he asked that wages be increased so as to restore the pre-war standard.

He quoted figures from a table compiled by the Railroad Administration showing that, whereas other classes of trainmen had had their earnings increased 48.7 per cent from December, 1917, to July, 1919, the earnings of yard foremen had increased only 20.5 per cent and those of yard helpers 28 per cent and of all classes of railroad employees had increased 42.7 per cent. He said that 26 days and eight hours a day should be sufficient to provide the American standard of living, so that overtime earnings ought not to be taken into consideration in determining a proper wage. Regarding the hazards of the occupation, he said that in the first six months of 1917 one switchman in 3.32 had been either killed or injured, but that there had been a reduction in accidents since the government put the yardmen on an eight-hour day. The records of the Switchmen's Union, he said, show that the average working life of a switchman is about seven years and a large number of death claims are paid on account of pneumonia caused by exposure. He read a letter from one of the locals of his organization showing that 75 per cent of the members had left the railroad service to take other positions at higher wages, and said that in Detroit common labor receives more pay than the switchmen. He said the increases asked average 46½ per cent, or from $2 to $2.50 a day, and he asked that the board give them consideration at the earliest possible date.

L. E. Sheppard Testifies for Conductors

Mr. Sheppard said that the conductors had refrained from striking during the war, although they had witnessed men in other classes of employment receiving substantial increases in wages and although railroad employees that had formerly received less than the conductors were given greater increases and in some cases higher wages than the conductors. Under the report of the Railroad Wage Commission, he said, freight firemen received greater increases and greater wages than the freight conductors, and he pointed out that enginemen receive higher rates in proportion to the increased weight of the engine, whereas conductors do not receive anything for increased weight or length of the train. Horace Baker, a

member of the board, asked if the higher rates for firemen are not offset by the fact that the conductor makes more mileage. Mr. Sheppard said that simply represents the fact that the enginemen had been more successful than the conductors in getting 100 miles fixed as the basis of a day's work instead of 150. He also said that whereas shop employees receive time and one-half for overtime after eight hours and pay for their time away from home, as well as an expense account, conductors receive overtime only for the time above that required at 12½ miles per hour, receive no pay for time away from home until after 16 hours, and no allowance for expenses, and in many cases are paid only half time for deadheading.

A. O. Wharton, a member of the board, said the difference is because the conditions referred to as to shop employees represent emergency performance, whereas in the case of conductors they represent regular service.

Mr. Sheppard cited the example of a conductor on the Virginian Railway who makes a round trip covering 190 miles in 12 hours of elapsed time and is paid $7.60 at 4 cents a mile and $1.70 overtime, a total of $9.47, whereas a car man sent out on the same train to work at an intermediate point receives $10.08.

The expenses of conductors away from home, Mr. Sheppard said, amount to $35 to $45 a month, although these do not apply to all men. He thought these expenses should be taken into consideration in fixing the rates or else covered by a separate expense account. He recommended a percentage increase in the rates for men who have to incur expenses away from home. Referring to questions by members of the board as to what percentage of train employees have families, Mr. Sheppard said that wages should not be fixed with reference to bachelors but with reference to the expenses of a man with an ordinary family.

Referring to examples frequently cited of conductors who receive large earnings, Mr. Sheppard said that such cases usually represent runs on which two men ought to be employed. He cited a run on the Norfolk & Western where a man leaves at 5:30 a. m. and returns at 8:50 p. m., on which he would make $11.12 mileage and $3.15 overtime, or a total of $14.27, but under another rule the company is allowed to pay for this run on the basis of two minimum days, or $12. The conductor, therefore, earns $360 a month by making the round trip, but two men can be used on this run at $180 a month each. He said the director general had changed many such conditions so that certain men would not receive abnormal pay. Mr. Sheppard expressed an opinion, although he said he would be criticized by some members of his organization for it, that local passenger conductors should receive higher rates per mile than those on faster trains, because, he said, it is easier to make large earnings on long, high-speed runs. He had once framed a schedule providing lower rates for higher speed trains, but had not received much support.

Mr. Sheppard figured the increase in the cost of living since 1913 at 97 per cent, whereas, he said, the wages of conductors have increased only 29 to 33 per cent in that time. If the reduction of the basic day from ten to eight hours be considered as an increase, he said, the conductors' wages have increased about 50 per cent, which means that they are entitled to a further increase of 47 per cent to restore their pre-war condition, and he estimated that the increases he asked for would amount to 35 or 40 per cent. He asked for a minimum of $225 a month for passenger conductors, $191.10 for assistant conductors and ticket collectors, $7.85 a day for through freight conductors in valley service, $8.38 in mountain service, $8.38 for local freight conductors in valley service and $9.13 in mountain service, and he asked that the board take into consideration proper differentials between various classes of employees in proportion to their service and responsibility, saying that he felt that the railroad officers on the board were entirely competent to establish such differentials. He said that many men are now refusing promotion from brakemen to conductors because they are unwilling to assume the increased responsibility for the small increase in pay, and it had been necessary for himself and W. G. Lee to use the power of their offices to force men to accept promotions, which had caused some criticism of himself and Mr. Lee within the organizations. One reason, he said, was that conductors have to put in a great deal of time for which they are not paid in making out reports.

Mr. Sheppard said that new wage contracts are being made all over the country in other industries at 90 cents to $1.25 per hour, and he compared the responsibility of a conductor with the foreman of a shipyard or the captain of a ship. The conductor, he said, must combine the qualifications of a Chesterfield or a diplomat and a pugilist and is as exposed to assault as a policeman and on his feet as much as a letter carrier.

In conclusion Mr. Sheppard asked that the board do not spend too much time in trying to figure the probable cost of the wage increase on the ground that it would be impossible to ascertain it accurately in advance and that the railroads will be called upon by the Interstate Commerce Commission to report the exact cost after the wages have been put into effect.

Railroad Did Not Delay Proceedings

E. T. Whiter asked permission to make a statement in reply to statements made on behalf of the labor leaders indicating that the railroads were seeking to delay the proceedings. He said that the railroads are in no way responsible for any delay that may have elapsed because their officers were government officers and the railroads had nothing to do with the preparation of the data necessary for the determination of wages, except as they were given orders from Washington. Many railroads, he said, do not yet know what is contained in the requests made by the labor organizations, because they were submitted to Washington and only a few of the railroad officers had been called into consultation on them.

W. N. Doak said that he had not intended to blame the railroads for the delay since the demands were presented, but that nearly a year has elapsed since they were presented to the Railroad Administration and the employees were anxious to avoid any further delays.

Chairman Barton of the board said the railroads might furnish copies of their proposed forms for the collection of statistical data and that copies should be furnished the other side for criticism or suggestion.

Warren S. Stone

Warren S. Stone, grand chief of the Brotherhood of Locomotive Engineers, on April 23 submitted to the board a proposed scale for engineers ranging from $8 to $9 a day in passenger service, with a minimum daily guaranty of $8.75; from $8.34 to $10.26 in freight service, with an addition of 64 cents for local or way freight service; and from $8 to $9.32 for yard service. The rates vary according to the engine, the highest rates being for Mallets. He said that according to the Railroad Administration statistics the average passenger engineer in July, 1919, had averaged $256.41, as compared with $186.02 in 1917, an increase of 37.8 per cent, but that these figures were too high. For freight service the average was $223.86, as compared with $175.55, an increase of 27.5 per cent, which he said was approximately correct. For yard service the figures showed an average of $175.14, as compared with $148.62, an increase of 17.4 per cent, which he said was too high.

Mr. Stone said he had participated in the making of engineers' schedules from the first and that the engineers had always received the highest rates paid to any railroad em-

ployees, but that under federal control the firemen had in some cases received more than the engineer on the same engine. The differential had been partially restored under a later order, and he asked that the former differential in dollars and cents be preserved.

The board will be told, Mr. Stone said, that many roads are bankrupt and cannot pay increased wages, but he asserted that they are mostly controlled by roads that do pay, and he cited various court decisions to the effect that employees have the first claim on railroad earnings whether or not the road is a paying investment. He also said the board would be told of instances where engineers receive large earnings, but that these cases are exceptional and indicate that men are crowding two or three years of life into one, whereas the cost to the railroad is no greater when an engineer makes big mileage than if the work were divided between two or three men.

"I have never dwelt very largely on the cost of living in making wage schedules," Mr. Stone said. "The cost of living, beyond the question of a bare existence, is what the individual man chooses to make it for himself, and the mere cost of living should not fix a man's wage. The wage ought to be fixed so it would be an incentive to a higher standard of citizenship and a higher standard of home life.

"I do not believe the mere question of wages is going to solve this present economic condition. We all know what a hopeless muddle the government has made trying to stop profiteering and reduce the cost of living. I believe if the President had retained his health we would have a different condition today. Some remedy has to be found different from the question of wages alone if we are going to exist as a nation. First of all I am an American citizen and after that a so-called labor leader. This thing cannot go on, and with this constant climbing spiral cost of living and wages trying to catch up and never quite doing it there is a smash on ahead somewhere."

Mr. Stone added that if wages are increased it will be merely an excuse for the "profiteers" to pass the amount on to the consumer fivefold, but when pressed by members of the board for the remedy Mr. Stone said he had no solution except "stop profiteering."

"I haven't any solution, I say to you frankly," he replied. "I do not believe an increase in wages alone is going to solve this problem. We have got to find a way to curb this profiteering."

Speaking of the hazard of the occupation, Mr. Stone said that "from the time a man comes to us until we pay his insurance, either through death or disability, the average term of insured life is 11 years and 7 days," and "out of 100 men who start as firemen but 17 ever become engineers, and out of every 100 who become engineers only 6 get to a passenger engine." "It is the survival of the fittest," he said, "and takes the cream out of a man's life, from the age of 30 to 45."

He said the engineer on the Congressional Limited from Washington to Jersey City, about 229 miles, has to observe 678 signals, or 2 a minute, and that the engineer on the Twentieth Century between Cleveland and Buffalo runs 181 miles in 184 minutes. "No wage you could pay a man would recompense him for that kind of driving," Mr. Stone said.

Referring to items of expense, Mr. Stone told the board that a suit of overalls that used to cost $2.50 to $3.50 now costs $9.

"A man who works for a railroad never gets too much pay," he continued, "and the engineers haven't received enough. Skilled mechanics are now getting almost double what the engineer gets, and common labor as much. I haven't tried to figure the cost of the increased wages, but I have wondered what the cost would be if we do not find some solution for the present industrial unrest. We are facing the most critical time in the history of our country. I think it would be much better for this board to take the necessary time to hand down a just and equitable decision than to undertake to pass snap judgment, but it should give some relief as speedily as possible."

Mr. Stone said he could prepare a schedule for engineers on one sheet of paper. "There are four fundamental principles," he said; "the rest is all trimmings. The schedules contain a lot of fake rules that take a lot of time of the operating officials and of committees and are a very expensive luxury at the best for both sides. If we had shown the acumen of the shop crafts and had a standard national schedule for all roads I think we would have improved our condition a lot."

Timothy Shea

Timothy Shea, assistant president of the Brotherhood of Locomotive Firemen & Enginemen, told the board on April 24 that the lesson to be learned from the steel, coal and railroad strikes was that "men will not work when they cannot live decently on the wages they are paid." When he had urged the striking railroad men in the Eastern terminals to return to their jobs, Mr. Shea said, their almost universal justification for going on strike was, "We and our families were starving at work; we could not keep our children in school, and we decided we might just as well starve not working."

Mr. Shea presented the demands of the firemen and hostlers for a basic wage of $6.50 per day, with differentials for responsibilty, skill, experience and the increase in the cost of living since the demands were first presented last June. No other basis of compensation than this would be acceptable, he said, and he warned the board against the dangers incident to further delays in settling the wage demands of railway workers.

Mr. Shea discussed the increase in the cost of living and the failure of the government to bring about price reductions, and introduced a large number of statistical exhibits in support of his views, but the burden of his argument was on the importance of the establishment of the principle of the living wage.

"This principle has already been officially and authoritatively recognized," said Mr. Shea. "As a war-time measure it received the support of the federal government in President Wilson's proclamation creating the National War Labor Board. At Paris, in negotiating the treaty of peace after the war, this same principle received the sanction of the enlightened opinion of the civilized world, and the guarantee of a living wage for industrial workers was embodied in the so-called labor provisions of the final draft of the treaty of peace. It was recognized and accepted as fundamental by the majority report of the President's Coal Commission, which says that 'in arriving at the present wage award we were guided by the principle that every industry must support its workers in accordance with the American standard of living.' A further sanction of the principle was given in a clear-cut and unequivocal form by the Industrial Conference recently called by President Wilson for the purpose of formulating a constructive program for regulating industrial relations and bringing about a greater measure of industrial peace."

Averaging the estimates of various authorities on the budget requirements for a living wage, Mr. Shea said this necessitated an annual income of approximately $2,250. As to the importance of immediate action Mr. Shea said:

"When our country was at war we were asked to be patriotic and bear as best we might with an inadequate wage in the face of constantly increasing costs of living. Last August, when we had waited almost a year after the armistice for relief that seemed as remote as peace itself, we urged our necessities and we were asked to be patient and promised that the government would see that living costs came down.

"We have been patriotic. We have been patient. We

were patriotic while the thousands and tens of thousands of war millionaires were being created. We have been patient while the profiteers have paused in their orgy of spending ill-gotten gains only long enough to skyrocket prices still higher and make a mockery of our government's promise that living costs would be reduced.

"Gentlemen, the time has come when our people say they will no longer be patriotic only to be plundered, nor patient only to be pauperized. They have learned by bitter experience that their landlords are not 'patriotic' and that their grocers are not 'patient.' They are fed up on promises, and they are dead, dog-tired of delays.

"The railroad men of the United States are Americans—don't forget that. They are proud of their country and proud of its institutions. They believe in them. But to them justice is just as precious as liberty, and that is all that they are asking at the hands of this board—justice and a square deal without further delay."

Mr. Shea said he had failed to discover any I. W. W.'s or bolsheviks among the strikers, but that many of them were ex-soldiers.

From an exhibit showing the earnings and expenses of firemen on 21 roads for three months in 1919 he said the men "were going behind every month from $5 to $100." The weighted average wage of firemen now, he said, is $4.41 a day for passenger service, $4.72 for freight service and $4.23 for yard service, or an average of $4.48 for all firemen, and this represents an increase since 1915 of $1.44 a day, or 47.4 per cent, whereas he figured the increase in the cost of living as 97 per cent. Therefore, he said, the present rates should be increased one-third to restore the pre-war status, and he also contended that there should be a further increase to make up for the accumulated deficiency of the past four years. During the war, he said, the men made up for the fact that their wages were not keeping pace with the cost of living by working overtime, but when the traffic fell off after the armistice that opportunity was denied them. "The time has arrived," he said, "when a man should be able to maintain an American standard of living by working eight hours a day and the basic wage should be sufficient without overtime."

After discussing various living budgets that had been compiled by various authorities, Mr. Shea said that the least a fireman ought to have would be $2,500 a year and that his scale, with the addition of about 15 per cent for the increase in the cost of living since it was made up, would produce about that amount. He also asked the elimination of differentials between the rates for oil-burning and electric locomotives and coal-burning locomotives, or on account of labor-saving devices, such as stokers, on the ground that although they may reduce the physical labor they require a knowledge of complicated mechanical appliances and increase the responsibility. He said the time is past when the work of a fireman should be considered in terms of physical labor, because the mechanical appliances and the longer time required for promotion from fireman to engineer have changed the position of fireman from that of an apprentice to a distinct trade. Also, he argued, a fireman has only his time to sell, and it is worth just as much to him even if he does less physical work in a day.

Labor Saving Devices

Mr. Shea's testimony covered three days. On the third day he took up his demand for the installation of labor-saving devices, such as automatic stokers, mechanical coal-producers, fire-door openers and grate shakers, on locomotives over 200,000 lb. on drivers, with an alternative that two firemen be employed on such engines. He said he had asked the director general to have all coal-burning locomotives over 175,000 lb. equipped with stokers, but that it had been decided it was necessary to get the consent of the corporations, and little had been accomplished. Mr. Shea said that it is "almost beyond physical endurance for one man to fire a large modern locomotive," and he argued that an extra fireman would prevent delays and save overtime for the entire crew enough to more than pay the wages of the extra man. He also asked that firemen be relieved of such work as cleaning locomotives, cleaning fires, breaking up or loading coal and other such incidental work on railroads where they have not already been relieved. A question was raised as to the power of the board to order the installation of new devices.

W. S. Carter

W. S. Carter, president of the Brotherhood of Locomotive Firemen and Enginemen, who was director of the Division of Labor of the Railroad Administration, said in part:

"I desire to register my most solemn protest against what appears to be a conspiracy to coerce and intimidate this board into denying railroad workers the wage increases to which they are entitled by every consideration of justice and fair dealing. From the beginning the press has been full of the idea that to raise the pay of railroad men will necessitate an immediate further advance in the cost of living and be simply another step in the so-called vicious circle of raising prices. There has been so much of this that it amounts to a conspiracy, if it is not actually that, and I protest that it shall no ebe permitted to render abortive our efforts to secure for the men, women and children we represent the relief that has been denied them for 10 long months.

"The general acceptance of this vicious circle lie is abundant evidence that the American people do like to be humbugged. To accept it is to believe that American labor is in a conspiracy to boost prices. If it is true, we are either criminals or criminally ignorant, and to say that we are the one or the other is an insult to the aspirations and intelligence of working men and women. We are not asking more money just to ease the itching palms of profiteers. We are not merely after more dollars in the pay envelope, but, rather, we are seeking more and better food, clothing and housing, and a shave of the reasonable comforts of life, in exchange for what is in the pay envelope.

"Mr. Chairman, our jails could and should be filled with Shylocks of trade whose crimes have been committed in the name of increased labor costs.

"I urge this board, when it has determined the amount of increase dwages railroad labor shall receive, to ascertain and inform the public exactly how much that increase should affect th eprices of all the principal commodities when railroad rates presumably have been raised to meet the increased labor cost. We want the American people to know the truth about this. We want to protect the public against a 10-dollar raise in the price of a suit of clothes on the grounds that railroad workers have been given higher wages, when as a matter of fact the increased cost of that suit of clothes incident to increased pay to railroad workers is only two or three cents."

Mr. Carter's argument was devoted largely to the relation of railroad labor costs to freight and passenger rates and commodity prices.

"Increased wage payments to railroad employees have been almost imperceptible in their effect on prices and may practically be dismissed from consideration as a factor in the high cost of living," he asserted. "If the rates of pay to all employees were increased 100 per cent the addition to the average commodity value of each ton of freight transported would be less than one per cent. Doubling the wages o fall employees, in other words, adding 100 per cent to railroad labor casts, would add only 88 cents to each $100 of freight transported.

"Although the average commodity value of each ton of freight originated from 1914 to 1919 increased $63 or 114 per cent, the freight charges per ton originated increased only 80 cents. In other words, the commodities which in 1914

sold at an average price of $56 per ton could have been sold for $56.80 per ton in 1919 without any curtailment of profit from additional freight charges.

"To illustrate further, in 1914 a suit of clothes from one of the Chicago factories selling at retail for $30, was carried from Chicago to Los Angeles for 16½ cents. The price of a similar suit in 1919 was about $50, an increase of $20, although the freight rate on the 2,200-mile haul had gone up only 5.6 cents. If the rates of pay of all employees were increased 50 per cent the additional freight charges on a similar haul would not exceed 4 cents or eight-hundredths of one per cent of the price of a similar suit of clothes to the consumer.

"In 1914 shoes manufactured in New England were shipped from Boston to Key West at a cost of 4.8 cents per pair. In 1919 the freight rate was only nine-tenths of one cent higher or 5.7 cents per pair, although the price of these shoes had advanced to $10, an increase of $5 per pair, or 100 per cent. Of this increase in prices, additional freight charges on the finished product represented only two-tenths of one per cent, an amount of negligible importance if it had all been paid to labor. The rates of pay of all railroad employees could be doubled, in short, without perceptibly affecting the price of such staple commodities as shoes.

"On long distance hauls of from 750 to 3,000 miles an increase in railroad labor costs of 50 per cent could involve in increased freight charges an addition to prices of only 15 cents per barrel for flour, only 12 cents per pound for beef cattle, less than two-tenths of one cent per pound for beef, only 12 cents each for typewriters, only 50 cents for a phonograph, only 60 cents per bale for cotton, only 10 cents per 100 pounds for copper, only 40 cents per ton for bituminous coal, only 60 cents per ton for anthracite coal, and only $5 for so bulky and valuable an article as a grand piano. As the typical ton of freight moves a distance of less than 300 miles the addition of 50 per cent to railroad labor costs would increase the freight charges for the average haul only about one-third of the amounts noted above.

"In his report of March 1, 1920, the director general of railroads shows that there would have been no loss whatever in the operation of the railroads up to October 31, 1919, if the principal rate increase had been made effective January 1, 1918, when the principal advances were made in operating costs, instead of six months later. But for the coal strike which caused a loss of $114,000,000, the steel strike, the slump in freight traffic occasioned by the industrial depression during the first six months of 1919, and other abnormal conditions, the additional operating deficit of $234,000,000 incurred under government control of the railroads would practically all have been avoided.

"The average increase of 32 per cent in freight and passenger rates during the war shows the direct cost to the public, therefore, under normal conditions, not only of the wage advances and shorter work days conceded railroad labor since 1914, but also of the great advance in the price of all commodities purchased by the railroads such as repair material, coal, oil, etc. The increase in wholesale prices of about 112 per cent has been more than twice as great as the percentage of increases in labor costs per traffic unit and more than three times as great as the increase in freight and passenger rates."

Board's Relation to Outlaw Strikers

That President Wilson intends to leave the entire wage controversy in the hands of the Railroad Labor Board was announced at the White House on April 22 after officers of the brotherhoods had called on Secretary Tumulty and informed him that rumors were being circulated among the striking yardmen in Jersey City that the President would intercede on behalf of the strikers with the board. "The President rests the entire question of a possible adjustment of the demands of all railway workers with the Railroad Labor Board," Secretary Tumulty announced. Some representatives of the strikers also called at the White House and were given a similar answer, after which they spoke of asking Congress to take a part in the proceedings.

The President is said to have ordered an investigation of the situation in the New York district by the Department of Justice.

Numerous representatives of the "insurgents" from various districts have been hanging around the offices of the labor board and attending its hearings since they were denied a separate hearing on the ground that they had not complied with the provisions of the law, and they have been doing a good deal of talking to newspaper men and conferring about organizing a new union or unions, but there are several among them ambitious of being officers of the new organization and there has been some question as to which of the several new organizations formed since the strike would be taken as the nucleus for the new ones. Meanwhile, they have referred to themselves as being in an alliance, except for those who went back to work. A delegation from Philadelphia said their followers had returned to work and asked for a hearing before the board on the ground that they had asked the railroads for a conference and had received no reply. They seemed dissatisfied with the brotherhood leaders and said they wished to ask for larger increases than had been asked by the brotherhoods or by the Switchmen's Union, which is now frequently referred to as "one of the five transportation brotherhoods" even by officers of the "big four."

Some of the leaders of the men who had left the service in New York and New Jersey left Washington on April 21 with the intention of advising their followers to return to work and leaving their case to be presented to the board by the brotherhood officers, but when they reached New York and were informed that the managers had refused to take them back with full seniority rights many of them returned to Washington, announcing their intention of "fighting to a finish."

Some of these men said that they were perfectly willing to return to work and await the action of the board as soon as they saw it begin to function at the public hearing that began on April 19, but that they had been unwilling to do so at the time set by the railroad ultimatum before they actually saw the board begin to take up the wage case. Many of them insisted that they were not disloyal to the unions and that they were not strikers but had "gone on a vacation" by way of protest because of the delay in getting action on their wage demands. Some of them felt that they had forced the expedited action to get the board started, and were very much surprised at being denied a hearing.

The board on April 24 announced its decision not to grant the application of the Cleveland Yardmen's Association for a hearing on the ground that it had not complied with the terms of the law and the conditions prescribed by the board, and on April 26 a similar decision was announced as to the Kansas City Yardmen's Association. A similar decision was later announced as to employees on the Pennsylvania, Baltimore & Ohio and Philadelphia & Reading lines, represented by George F. Koehl, chairman; employees in the Pittsburgh territory represented by George W. Yount, and the Chicago Express & Freight Handlers' Union.

In reply to telegrams received from chambers of commerce and other commercial organizations, the board on April 26 sent a telegram saying it was proceeding with all diligence in an effort to effect an early adjustment.

Chairman Barton said on Tuesday that the board had under consideration the question as to whether representatives of the short lines and others not represented by the managers' committee should be asked to appear before the board.

General News Department

The Western Union Telegraph Company on April 23 instituted mandamus proceedings in the Supreme Court of the District of Columbia to compel the Interstate Commerce Commission to correct its valuations of the Texas Midland and Kansas City Southern railways, and to report the values of telegraph lines along the right of way of the railways as the property of the telegraph companies instead of including them in the railway valuation.

The Southeastern Demurrage & Storage Bureau has been organized, with headquarters at Atlanta, Ga. F. M. Hardin, formerly assistant manager of the Southern Freight Inspection Bureau, is manager. About sixty roads are represented. Prior to the federal control of railroads there were seven demurrage bureaus in southeastern territory, but during the war all of them were merged in the Southern Freight Inspection Bureau. This merger is now dissolved.

Trainmen and enginemen employed on the Sonora division of the Southern Pacific of Mexico went on strike on April 3, completely tying up traffic on its lines in the state of Sonora, Mexico. On April 9, the Sonora State government seized the road and since that time has been operating it, running for the most part military trains. The employees left their work in spite of an injunction issued at the instance of President Carranza by the Mexican Federal Court. The railroad, according to press despatches, is still practically idle as far south as Mazatlan, Mex.

The National Safety Council, in its campaign to prevent highway crossing accidents, recently promulgated a questionnaire to be forwarded to railroads throughout the country requesting information as to the success or failure of the "Nine Second Whistle Code" which was adopted as a standard crossing whistle several years ago by the Chicago & North Western, and which is now in more or less general use. A tabulation of the information received on the questionnaire will be made by the Safety Council and forwarded to all members of the Steam Railroad Section.

Signal Engineers' Meeting

The New York Sectional Committee of the Signal Division, of the American Railroad Association, will hold a meeting at Hotel McAlpin, 34th street, New York City, on Thursday evening, May 20. A. H. Rudd, chief signal engineer of the Pennsylvania, will read a paper on light signals.

Progress in Valuation

In a report issued on April 15 by Frederick H. Lee, secretary of the Presidents' Conference Committee on Federal Valuation, the statement is made that although no tentative valuations have been served by the Interstate Commerce Commission since the 8th of November, 151 preliminary engineering, 167 land and 53 accounting reports have been tendered to the carriers for examination.

A. S. C. E. Question 3 Fails of Adoption

Although no public announcement has been made of the vote on the questionnaire submitted to its members by the American Society of Civil Engineers asking for an expression of opinion regarding a number of points raised by the report of the Development Committee, it is understood that Question 3, relating to the formation of a large organization of all engineering societies to handle other than technical matters, failed of adoption by a small majority. This question has been the source of active discussion which developed marked differences of opinion. It is understood that a generally favorable attitude was expressed on most of the other questions.

A. R. E. E. To Meet at Atlantic City

The semi-annual meeting of the Association of Railway Electrical Engineers will be held at the Hotel Dennis, Atlantic City, on June 14. The meeting will be called to order at 9 a. m. Progress reports will be presented by the following committees:

Trucks and tractors; electric welding; illumination; train lighting equipment and practice; railway stationary power plants; electric head lights; electrification; electric repair shop facilities and equipment.

Mechanical Section Scholarships

Two of the four scholarships at Stevens Institute of Technology, which the Mechanical Section of the American Railroad Association offers to sons of members of the section, will be vacant in June. These scholarships cover the regular tuition charges for a four-year course, leading to the degree of mechanical engineer. The course offered also includes instruction in electrical, civil and other branches of engineering. Applications should be in the hands of V. R. Hawthorne, secretary, Chicago, not later than June 15. In case there are more than two applicants the scholarships will be given to the two passing the entrance examination with the highest standing. Full information will be supplied by the secretary upon application.

Parmelee Drivers Strike at Chicago

Parmelee Transfer Company drivers at Chicago, numbering 700, struck on April 24 and immediately tied up the baggage transfer business in that city. As a result of the strike thousands of travelers have been forced to carry their own baggage between stations and to hotels. Passengers were transferred from one station to another in taxicabs hired by the company, while three baggage cars were used in delivering baggage to the various stations via the Belt Line Railroad. The men struck after their demands for increases of from 55 to 75 per cent were refused. They were getting 40 cents an hour and averaged, with Sunday work and overtime, from $140 to $165 a month, according to Charles A. McCulloch, president of the company.

Mr. McAdoo's View

W. G. McAdoo, former director general of Railroads, in a reply to a questionnaire sent to presidential candidates by the National Board of Farm Organizations, says:

"While I think that the Esch-Cummins bill should be given a fair trial, I am sure that it does not and cannot settle the railroad problem because it does not reach the fundamentals.

"Private ownership is on trial and if the railroads now fail to provide the facilities and service demanded by the growing needs of the American public the problem must be grappled with vigorously and intelligently until the right solution is found. If satisfactory service is not rendered under private control within a reasonable time, we shall not have to wait two years before the question is reopened—it will reopen itself just as soon as the American people are convinced that private control is unequal to the task."

Railroad Appropriation Bill Passed

The deficiency appropriation bill carrying $300,000,000 appropriation for the Railroad Administration was passed by the Senate on April 27, with an amendment designed to protect the interest of the short lines that were relinquished from federal control and that thought they were to be reimbursed, under the provisions of the transportation act, for deficits or decreases in their operating income during the period of federal control. The Interstate Commerce Com-

mission, however, interpreted this provision as applying only to roads that had a deficit. The appropriation bill, as passed by the House, contained a provision for the deduction of such sums as may be due from such carriers to the government on account of traffic balances or other indebtedness, and the Senate inserted words to indicate that the deductions shall be made from the amount of the "deficit or decrease" in railway operating income.

Louisville & Nashville Experimenting with Wireless

The Louisville & Nashville is experimenting with wireless telegraph for the purpose of reaching division headquarters located along the Gulf of Mexico from the general offices at Louisville. Certain sections in this area are subject to storms which appear with more or less intensity each year, and which cause considerable damage not only to the telephone and telegraph lines but to the railroad itself. The loss of land communication is a serious detriment to the assembling of material for prompt repairs after such storms and strenuous efforts have been made to maintain telephone and telegraph service on pole lines with varying success.

It is expected that if the wireless is successful, stations will be installed in the storm district around New Orleans and Bay St. Louis, which will communicate direct with the general offices at Louisville. This service will also be of assistance in handling ordinary message business, relieving the congested conditions of the wires. The practicability of radio communication for this purpose has not been thoroughly demonstrated as yet, as the weather effects on wireless constitute an interference which it may not be possible to eliminate. The equipment being used is of the deForest type, long distance service, with which no difficulty has been experienced in reading European and South American stations.

Proposed National Council of Engineers

L. C. Marburg, secretary of the "Joint Conference Committee" representing the four leading engineering societies, has issued a call for a conference to be held at Washington, D. C., on June 3 and 4, to take action on the resolution, which was adopted last January, looking to the formation of a national association of engineering organizations for the purpose of facilitating united action in local questions of public welfare and other matters of common interest.

The leaders in this movement are the four committees appointed by the four associations, as follows: for the American Society of Civil Engineers, Richard L. Humphrye (chairman), George G. Anderson and Gardner S. Williams; for the American Institute of Mining and Metallurgical Engineers, Joseph W. Richards (chairman), Philip N. Moore, John V. W. Reynders and Allen H. Rogers; for the American Society of Mechanical Engineers, L. C. Marburg (chairman), L. P. Breckenridge, E. S. Carman and D. S. Kimball; for the American Institute of Electrical Engineers, Charles F. Scott (chairman), L. T. Robinson and Calvert Townley.

All engineering organizations whose chief object is the advancement of the knowledge and practice of engineering, and the allied technical arts, and which are not organized for commercial purposes, are invited to send delegates to this conference. Delegates should be selected as soon as possible and responses are desired by May 15, if possible. The address of the secretary is 39 West 39th street, New York City.

Engineers' Dinner at Chicago

The governing boards of the four national engineering societies—the American Society of Civil Engineers, the American Institute of Mining & Metallurgical Engineers, the American Society of Mechanical Engineers, and the American Institute of Electrical Engineers—met in separate sessions in Chicago on Monday and Tuesday, April 19 and 20. On Monday evening the boards of these societies and of the Western Society of Engineers, joined in a dinner at the LaSalle hotel, and in a conference relative to the joint activities of these organizations. A. Stuart Baldwin, vice-president of the Illinois Central and past president of the Western Society of Engineers, presided. The principal address was given by Dr. Theodore G. Soares, University of Chicago, on the application of engineering to the various activities of life. Short talks were also given by Arthur P. Davis, president American Society of Civil Engineers; Arthur Thatcher, director, American Institute of Mining and Metallurgical Engineers; Fred J. Miller, president, American Society of Mechanical Engineers, and Calvert Townley, president, American Institute of Electrical Engineers.

Daylight Saving

"Summer Time" went into effect quite generally in Massachusetts on Sunday, April 25, the Supreme Court of the state having dismissed the bill in equity which had been brought before the court with a view to having the law declared unconstitutional because of its being in conflict with the federal law regulating the time of railroads. The governor and council of New Hampshire last week adopted a resolution in opposition to the use of summer time, and telegraphed to President Wilson, and the New Hampshire members in Congress, protesting against the use of the new time tables issued by the Boston & Maine.

The city of Providence and most other places in Rhode Island set their clocks forward an hour on Sunday, but the legislature of that state has not yet approved the proposition. Trenton, N. J., and Wilmington, Del., have adopted summer time, though Trenton does not put it into effect until next Sunday. Both places thus will be out of step with Philadelphia, which, in compliance with the state law of Pennsylvania, continues to use Eastern standard or 75th meridian time. In Pittsburgh, Pa., the mayor issued a proclamation on April 23 asking all the citizens to set their clocks forward one hour on the following Sunday.

The legislature of New York, in its closing days, passed a bill repealing the present law of the state. This requires the use of summer time, and to that extent is in conflict, so far as the practice of interstate railroads is concerned, with the federal law; but the governor has not yet signed the bill. The repeal is understood to have been carried for the purpose of favoring the farmers; but the governor is expected to nullify it by his veto.

The $300,000,000 Revolving Fund

The Interstate Commerce Commission on April 28 issued the following notice to carriers:

"By section 210 of the transportation act, 1920, the sum of $300,000,000 was appropriated which shall be used as a revolving fund for the purpose of making loans to carriers by railroad subject to the interstate commerce act upon the certificate of the commission to enable them properly to serve the public during the transition period immediately following the termination of federal control, and for paying the judgments, decrees and awards referred to in subdivision 2, of section 206 of said act.

"Compared to the transportation needs of the public for new equipment and additional facilities, the available part of this fund is small, and it must not be administered piecemeal, but in accordance with the best interests of the public as a whole. At the request of the commission, therefore, the Association of Railway Executives is preparing a comprehensive plan for the use of this money, for new cars and locomotives and for additions and betterments which will speed up the movement of existing equipment, in the way which in their opinion will do most to improve service all over the country. The commission's task will be simplified and prompt action made possible if carriers desiring to apply for loans will work with the association, so that their applications may be in harmony with its recommendations. The commission, however, will not be limited by the recommendations of the association and careful consideration will be given to all applications which are received.

"Applications should be filed, if possible, on or before May 10. Forms showing the information which the commission requires may be obtained upon request from the secretary. Any applicant desiring to furnish further data or arguments in support of its application should do so by filing a brief in the usual form on or before May 15.'"

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF FEBRUARY, 1920—CONTINUED

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses						Operating ratio.	Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
		Freight.	Passenger.	Total (Inc. misc.)	Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.					
Ft. Worth & Rio Grande	235	$90,053	$54,375	$155,063	$43,837	$28,975	$2,123	$105,541	$6,422	$186,897	120.52	—$31,834	$3,785	—$35,635	—$2,445
Galveston, Harrisburg & San Ant.	1,381	1,258,843	438,019	1,795,605	262,136	535,096	18,744	799,932	53,477	1,690,564	94.15	108,041	61,224	45,518	—43,845
Galveston Wharf	13	.....	.....	83,768	26,765	636	43	34,415	1,932	79,146	94.48	4,621	12,200	—7,578	—8,328
Georgia	328	360,701	122,060	519,693	56,644	93,264	11,440	282,143	18,573	462,245	88.94	57,449	5,950	51,501	—18,762
Green Bay & Western	252	69,409	18,089	93,457	9,596	28,754	823	41,791	2,644	83,603	89.45	9,854	5,380	4,475	—1,107
Georgia Southern & Fla.	402	330,063	129,903	486,939	80,188	125,151	7,493	236,506	11,226	464,014	95.29	22,926	17,500	5,170	—35,529
Grand Rapids & Ind.	569	501,896	129,853	701,699	81,062	178,631	12,465	385,807	23,548	682,899	97.32	18,800	40,111	—21,311	12,754
Grand Trunk Western	1,020	1,287,668	225,152	1,914,855	217,111	629,333	22,381	1,014,213	60,340	1,952,912	101.99	—38,057	52,803	—90,928	—161,759
Grand Lines in N. E.	172	222,390	29,022	279,132	74,499	66,338	4,331	188,559	13,288	372,019	133.28	—92,887	12,699	—105,586	—2,840
Great Northern	8,176	5,006,821	1,299,075	7,252,817	1,534,915	1,786,819	61,431	4,031,711	155,577	7,722,658	106.47	—469,842	668,288	—1,141,447	—1,024,809
Georgia & Florida	405	67,170	19,809	95,391	68,081	29,272	3,275	94,563	6,801	201,992	211.75	—106,601	6,000	—112,622	—89,460
Gulf & Ship Island	307	135,351	41,333	191,985	64,423	58,905	5,056	92,004	9,174	230,013	119.81	—38,028	14,119	—52,201	—36,687
Gulf, Colorado & Santa Fe	1,937	1,386,217	430,650	1,931,171	602,799	412,673	20,653	916,981	56,583	2,000,964	103.61	—69,793	85,918	—156,098	—376,563
Gulf, Mobile & Northern	470	188,820	50,111	255,663	106,677	69,327	12,604	125,531	10,192	324,331	126.86	—68,669	12,987	—81,731	—51,393
Hocking Valley	350	904,957	85,375	1,031,033	86,256	331,047	23,941	433,941	20,370	895,524	86.85	135,509	80,797	54,711	281,108
Houston & Texas Central	885	639,186	197,327	894,555	184,992	188,136	6,301	371,955	23,035	774,104	86.53	120,451	37,685	32,429	68,995
Houston, East and West Texas	190	184,046	45,396	240,629	39,589	39,951	921	115,993	4,798	201,254	83.63	39,375	7,570	31,700	17,448
Illinois Central	4,800	8,434,456	1,907,094	11,093,800	1,814,491	2,741,463	135,548	4,559,510	231,851	9,536,809	85.97	1,556,991	507,980	1,043,076	787,766
Indiana Harbor Belt	120	.....	.....	688,090	54,109	141,057	2,778	463,560	17,940	679,443	98.74	8,647	10,101	—1,454	98,684
International & Great Northern	1,159	983,106	251,190	1,316,520	370,851	367,262	15,568	669,237	40,848	1,468,903	111.57	—152,382	32,503	—185,096	—24,040
Kanawha & Michigan	176	300,711	44,829	382,742	45,553	111,145	3,591	141,959	10,966	313,215	81.83	69,527	25,000	44,527	136,716
Kansas City, Mexico & O.	272	107,481	16,251	131,944	58,093	47,576	4,423	67,118	8,458	185,669	140.71	53,725	7,700	—61,441	1,351
Kansas City, Mexico & O. of Texas	465	130,325	19,550	161,771	50,717	58,278	5,097	72,475	12,066	198,633	122.78	—36,862	6,419	—43,505	41,695
Kansas City Southern	774	1,210,996	222,379	1,538,382	194,203	406,372	20,769	599,408	43,953	1,263,975	82.16	274,408	54,571	219,228	178,206
Kansas City Terminal	27	.....	.....	117,896	21,853	41,199	.....	81,322	2,606	149,093	126.46	—31,196	27,350	—58,546	—40,367
Lake Erie & Western	902	673,051	59,459	772,441	75,186	250,415	19,092	361,682	22,731	729,105	94.38	43,335	49,000	—5,676	—14,928
Lake Terminal	12	.....	180	97,439	12,181	23,641	.....	70,129	105	108,057	110.90	—8,618	5,767	—14,385	—23,114
Lehigh & Hudson River	96	126,735	3,721	138,599	22,198	44,892	1,221	96,696	6,310	171,317	123.61	—32,718	8,562	—41,309	—76,485
Lehigh & New England	229	212,132	2,813	227,776	34,218	83,601	2,982	121,807	11,462	252,217	110.73	—24,440	10,860	—35,300	5,376
Lehigh Valley	1,435	3,618,429	442,017	4,504,277	798,904	1,713,601	39,109	3,107,997	96,297	5,775,560	128.22	—1,271,282	176,000	—1,447,458	—1,258,053
Long Island	398	360,613	751,348	1,318,686	276,985	385,095	12,751	1,120,335	52,526	1,859,467	141.00	—540,781	105,609	—647,543	—522,095
Louisiana & Arkansas	302	312,977	49,656	375,807	44,331	43,318	3,328	123,568	7,537	222,031	59.08	153,775	13,587	140,183	140,999
Louisiana Ry. & Nav. Co.	343	284,194	39,792	337,156	85,024	61,497	4,705	132,755	9,808	293,790	87.13	43,367	14,023	29,329	75,619
Louisiana Western	207	264,557	100,745	385,981	86,944	70,768	5,260	103,998	11,123	280,694	72.90	105,287	19,795	85,403	15,285
Louisville & Nashville	5,040	7,675,380	1,899,013	10,111,516	1,959,832	2,548,027	238,339	4,296,746	197,955	9,285,183	91.83	826,333	250,699	575,391	—160,831
Louisville, Henderson & St. Louis	199	177,204	57,332	246,726	49,032	29,386	5,414	93,975	8,459	186,266	75.49	60,460	—18,147	78,597	46,999
Maine Central	1,216	624,737	273,115	1,024,381	408,636	383,477	9,755	769,458	38,698	1,610,125	157.18	—585,744	82,742	—668,503	—498,781
Maryland, Delaware & Virginia	82	40,809	13,958	58,672	6,211	39,963	908	59,802	2,379	109,264	186.22	—50,592	2,000	—52,592	45,039
Michigan Central	1,862	4,328,180	1,270,132	6,213,735	546,777	1,436,611	56,500	3,026,916	103,458	5,268,625	84.78	95,109	250,000	694,085	—97,754
Midland Valley	388	262,487	95,557	373,373	68,104	119,404	3,891	159,327	14,006	364,732	97.68	8,641	7,183	1,396	—66,771
Mineral Range	101	42,386	144	44,575	16,460	18,498	314	30,232	934	66,439	149.04	—21,864	3,600	—25,464	—22,331
Minneapolis & St. Louis	1,646	916,132	201,525	1,148,581	130,282	330,077	15,798	648,159	28,505	1,153,287	100.41	—4,706	56,306	—61,150	96,111
Minneapolis, St. Paul & S. Ste. Marie	4,243	2,375,246	521,225	3,481,254	451,691	735,121	21,674	1,692,816	89,036	3,002,254	86.24	479,000	216,177	262,654	95,118
Minnesota & International	194	69,954	27,071	111,901	8,364	28,067	547	67,248	4,018	108,243	96.73	3,658	5,667	—2,013	2,507
Missouri & North Arkansas	254	90,516	43,551	143,597	60,117	27,431	2,728	85,631	9,687	185,594	129.25	—41,997	6,242	—48,239	42,693
Mo., Kansas & Texas Railroad of Texas	1,796	1,329,288	725,647	2,235,264	572,475	467,215	29,487	1,526,693	85,513	2,715,477	121.48	—480,213	59,580	—540,454	—498,226
Missouri, Kansas & Texas	1,715	2,098,041	689,672	2,996,268	498,973	871,119	30,177	1,002,218	89,999	2,509,964	83.76	486,303	108,834	376,846	248,330
Missouri, Oklahoma & Gulf	329	175,100	20,232	202,793	55,046	75,552	1,740	119,355	8,185	260,109	128.26	—57,316	9,100	—66,455	3,934
Missouri Pacific	7,299	7,271,641	1,507,517	9,442,931	1,600,726	1,824,313	85,426	4,024,795	225,012	7,789,679	82.49	1,653,252	171,151	1,479,926	1,225,899
Mobile & Ohio	997	1,284,337	171,030	1,544,656	252,565	410,036	26,632	708,021	44,372	1,442,441	93.38	102,215	73,000	28,988	159,145
Monongahela	108	289,863	21,988	317,564	57,321	72,743	529	88,502	6,920	226,016	71.17	91,547	5,000	86,548	22,525
Monongahela Connecting	7	.....	.....	242,662	20,108	35,618	572	105,113	6,583	167,994	69.22	74,668	3,403	71,264	99,476
Montour R. R.	56	75,247	1,221	78,519	14,899	33,075	1,317	29,406	6,765	86,747	110.47	—8,228	2,430	—10,660	39,099
Morgan's Louisiana & Texas	400	542,852	166,926	751,265	106,216	157,751	12,187	250,540	20,229	549,796	73.18	201,469	36,551	164,675	158,204
Nashville, Chattanooga & St. Louis	1,247	1,393,915	405,108	1,908,613	358,043	872,538	56,152	782,470	44,252	2,115,030	110.82	—206,417	46,000	—252,653	—129,923
Nevada Northern	168	138,848	9,150	153,921	30,355	27,752	561	41,887	3,483	104,192	67.69	49,730	9,267	40,462	13,606
New Orleans & N. E.	398	504,767	90,168	653,782	111,665	130,335	12,715	240,008	15,329	515,675	78.87	138,108	39,781	98,266	206,023
New Orleans Great Northern	284	144,264	39,141	192,191	42,911	50,292	3,946	73,392	8,868	179,854	93.58	12,336	11,000	1,317	1,292
New Orleans, Texas & Mexico	191	139,882	38,278	184,292	52,695	44,810	3,671	60,500	6,809	168,513	91.43	15,779	11,000	4,723	—7,493
New York Central	6,069	14,145,320	5,554,946	23,724,048	2,948,377	6,300,875	272,550	13,293,042	676,018	23,901,374	100.75	—177,326	1,008,503	—1,190,327	—2,104,960
New York, Chicago & St. Louis	574	1,925,825	88,522	2,077,935	105,985	403,667	42,788	1,035,487	67,049	1,718,948	82.72	358,987	60,000	298,949	—224,215
New York, New Haven & Hartford	1,965	2,578,812	3,142,987	6,915,962	1,498,773	1,937,216	51,340	4,761,776	266,011	8,676,541	125.45	—1,760,579	315,000	—2,078,499	—1,768,596
New York, Ontario & Western	569	533,435	86,219	773,644	136,130	169,848	8,069	446,558	22,550	783,154	101.23	—9,510	12,483	—21,993	70,564
New York, Philadelphia & Norfolk	121	451,469	74,434	594,305	50,897	195,600	8,684	362,237	10,911	636,270	107.06	—41,965	19,451	—61,499	—120,690
New York, Susquehanna & Western	135	205,580	64,917	308,264	61,838	120,997	5,594	320,678	8,489	517,596	167.91	—209,333	18,674	—228,025	—208,977
Newburgh & South Shore	7	.....	.....	120,757	11,110	31,128	.....	82,222	4,560	129,020	106.84	—8,263	6,999	—15,262	—30,261
Norfolk & Western	2,202	5,241,956	606,192	6,237,718	749,631	2,196,702	69,091	2,573,393	108,754	5,728,419	91.84	509,299	285,000	223,196	—624,401
Norfolk Southern	906	291,513	134,083	462,460	95,680	129,300	10,738	289,287	22,059	547,191	118.32	—84,731	16,000	—100,876	—51,744
Northern Pacific	6,642	6,114,670	1,260,871	8,122,484	893,439	1,578,911	96,266	3,595,439	175,441	6,442,906	79.31	1,679,579	610,982	1,066,835	—122,527
Northwestern Pacific	538	250,116	158,548	461,650	144,553	76,164	4,602	237,859	15,750	481,311	104.26	—19,660	25,593	—45,373	—6,318

Traffic News

The Trans-Canada Limited express of the Canadian Pacific, crossing the continent in about 92 hours, will be put in service for the summer on May 2.

The railroad strikes were the cause of a reduction of 2,000,000 tons in the production of bituminous coal during the week ended April 17, according to the weekly bulletin of the Geological Survey. The output for the week was 7,668,000 tons.

The Wabash has withdrawn from the consolidated ticket offices in the Insurance Exchange Building, Chicago, and will establish new offices on May 1. Similar action has already been taken by the Chicago & North Western and the Soo Line.

The Southeastern Passenger Association has announced that carriers in the territory south of the Ohio and Potomac and east of the Mississippi rivers, discontinued the prepay order system on April 1. The order was abolished as a means of decreasing operating expenses. Under the new system it is impossible for anyone in one city to deposit the cost of a railroad ticket for a person in another city.

The Commission on Car Service has sent to the eastern railroads a telegram saying that the demand for stock cars as a result of inability to ship due to strike difficulties is such that unless stock cars are confined to livestock loading there will be a very serious shortage. It will be necessary therefore that stock cars be withdrawn from general service and forwarded to stock market centers without delay.

Seasonal Coal Rates

Senator Frelinghuysen's bill to stabilize the coal industry and promote a more even distribution of coal production throughout the year by providing for a 15 per cent reduction in freight rates on coal during the summer and a corresponding increase in the winter found very little support at a hearing before a sub-committee of the Senate interstate commerce committee on April 22 and 23. Representatives of the railroads and many coal operators objected to a statute prescribing rigidly the extent of the reduction, on the ground that the Interstate Commerce Commission has full authority over rates. The railroad representatives particularly objected to a seasonal reduction in rates this year on the ground that it would not accomplish the desired object of promoing early shipment of coal because there is not now any surplus of transportation facilities, and there is not likely to be for some time to come. Therefore, they argued, a reduction in the freight rate at this time would merely increase the profits of the coal operators, because the price will be more influenced by the shortage of coal production than by the freight rate. Many shippers opposed the bill on the ground that they would not be able to buy all their coal early in the year and would be penalized in that part of their supply which they cannot get until winter.

Eugene McAuliffe, appearing on behalf of the American Institute of Mining and Metallurgical Engineers, advocated the principle of seasonal coal rates but he criticized the flat percentage named in the bill and proposed a substitute bill providing for varying differentials (in cents per ton) for each month. The hearing brought out the fact that parties interested in different grades of coal would be differently affected by seasonal rates.

G. M. Snider, appearing on behalf of eastern railroads, said no possible benefit would accrue from revising the rate on coal from the mines to the Lake Erie ports, which is normally moved during the summer months and that a reduction in rates to New England ports during the summer would increase the rail movement of coal and require the use of cars that ought not to be used for that purpose but should be used in connection with the shorter hauls to and from water points. Asked by Senator Frelinghuysen as to whether lower rates during the summer would not mean that the consumer would pay less for his coal, Mr. Snider said that such a result could not be expected where the demand exceeds the supply.

Commission and Court News

Interstate Commerce Commission

Proposed Double Loading of Grain

Carriers generally throughout the United States, under authority of a Railroad Administration freight rate authority of October 29, 1919, and a fifteenth section order of the Interstate Commerce Commission, filed with the commission supplements establishing certain increased carload minimum weights on grain, which expire on August 31, 1920. Acting on complaints that the effect of these minimum weights will be injurious to certain interests, and believing it desirable to permit double loading of cars, the commission to obtain additional facts has called an informal conference of state commissions, shippers, carriers and others at Hotel Jefferson, St. Louis, on May 10. The commission makes the following suggestions; but parties appearing may propose other measures:

1. To establish a minimum weight of 40,000 lb. on grain products now subject to a minimum of 60,000 lb., subject to the following provisions:
2. Not less than two shipments shall be loaded in the same car, each to be subject to the minimum of 40,000 lb.
3. . . . The destination of one shall be directly intermediate to that of the second via some route authorized in the tariffs. If more than two shipments are loaded, the destinations of two must be directly intermediate to that of the third.
4. Circuitous or back hauling to reach the last point of consignment through the first point or points of consignment will be permitted over the lines of the same carriers not exceeding 25 per cent of the distance to the last point of consignment.
5. The distance from the destination of the first shipment to the destination of the last shipment over the route of movement shall not be greater than one-half the total distance from the point of origin (or in the case of transit shipments, the transit point) to the last destination point via the first destination.
6. Tariffs shall provide that it is the duty of carriers' agents at destination to supervise the unloading and make record of delivery of each of such shipments.

State Commissions

The New York State Public Service Commission, Second District, has called on the New York Central to show cause, on May 13, why passenger fares between Albany and Buffalo should not be put back to the rate of two cents a mile, which is the rate prescribed in the company's charter and which was in effect until all fares were advanced by the Railroad Administration while the road was under federal operation.

The "Association of Railroad and Public Utility Commissioners of the Cotton-Growing States" was organized recently at a meeting in Montgomery, Ala. One of its chief objects is co-operation with the American Cotton Association for the protection of cotton in transit. S. P. Kennedy, president of the Alabama Public Service Commission, is president; B. H. Cooper, of Alabama, first vice-president; H. H. Arnold, of South Carolina, treasurer; Frank W. Shealy, of South Carolina, secretary.

Court News

No Presumption That Automobile Will Break Down on Crossing

The driver of an automobile attempted to cross a track at a road crossing, and had ample time to do so, but his engine choked down and the automobile stopped on the track, was struck by a train and destroyed. In an action for its loss the Florida Supreme Court held that the railroad was not guilty of negligence in not assuming that the car would break down and stop on the track. The engineer had the right to presume that an automobile crossing the track a quarter of a mile ahead of his train would be over and away in ample time before his train could reach the crossing. He was not called on to presume that the engine

would choke and cause the automobile to stop on the track. The railroad's obligation began only at the instant that its employees knew that the auto had stopped on the track. It then became its duty to stop the train if possible. This was done and no recovery could be had. Judgment for the plaintiff was therefore reversed.—L. & N. v. Harrison (Fla.), 83 So. 89.

Enjoining Numerous Separate Actions on Similar Freight Claims

The Atchison, T. & S. F. filed a complaint in equity to enjoin the prosecution in a justice court of 648 separate actions against it by the same person and to compel their litigation in a single action. The plaintiff had obtained assignments of claims from consignees for alleged excess freight charges, fixed by the company's regular schedules, but alleged to be in contravention of the long and short haul clause of the California Constitution. The total amount of the claims was $6,015. The minimum court costs would far exceed that amount and if appeals were taken the total cost would run up to $15,000 or $20,000. The company alleged that it had a good defense to all the claims (which the consignees had all paid voluntarily), in that the clause of the State Constitution was void because in conflict with the commerce clause of the Federal Constitution.

The California District Court of Appeal, Second District, assuming the facts as pleaded to be true, held the railroad entitled to relief on two grounds. First, if a conspiracy and combination had been entered into between the assignee of the claims and the justice of the peace before whom the actions were pending to force a settlement and payment of these claims by reason of the prohibitive cost of defending them, it was such an abuse of the process of the courts as should estop the assignee from prosecuting them and the justice from trying them. A remedy by change of venue would involve the prepayment of costs greater in amount than the total of the claims, and still subject the railroad to the same multiplicity of suits and indefinite future costs in another tribunal. Whatever potential rights the assignee might have, the fact remained under the pleadings that he was using the process of the courts, not to procure a judicial determination of his rights, but to prevent such a determination, and to force a settlement by piling up against the railroad excessive and prohibitive costs. Second, if the assignee was acting in good faith, it was in his own interests, as well as the railroad's, to demand a consolidation of the actions. It would require two years of constant work of the justice's court, if each of these cases should be tried separately, before they could be disposed of; whereas they could be tried in a consolidated action in a few days at most. The justice court itself could not consolidate the actions. Therefore, the railroad was held entitled to injunction in equity.—Atchison, T. & S. F. v. Smith (Cal.), 183 Pac. 824.

United States Supreme Court

Grab Irons Required at Two Corners Only

Relying upon the federal Employer's Liability Act, a brakeman sought damages for personal injuries sustained by him on November 8, 1915. He claimed that the railroad was negligent in using a freight car not equipped with handholds on all four corners; and also in failing to instruct him that he would be required to work about cars not so equipped. The car had adequate handholds on the diagonally opposite corners. The trial court, holding that this equipment fulfilled the commands of the statute and that failure to instruct the brakeman concerning possible use of such car did not constitute negligence, directed a verdict for the railroad. The Circuit Court of Appeals affirmed the consequent judgment . On appeal the plaintiff insisted that section 4 of the Safety Appliance Act of 1893 providing for "secure grab irons or handholds in the ends and sides of each car" intended that they should be placed at all four corners.

The Supreme Court of the United States has affirmed the judgments of the courts below, holding that the section must be interpreted and applied in view of practical railroad operations. "Likewise we accept the concurrent judgment of the lower courts that the carrier was not negligent in failing to give warning concerning the use of cars with handholds only at two diagonal corners. Whether this constituted negligence depended upon an appreciation of the peculiar facts presented, and the rule is well settled that in such circumstances where two courts have agreed we will not enter into a minute analysis of the evidence.—Chicago Junction Railway Co. v. King, 222 U. S. 222." Per W. Justice McReynolds. Boehmer v. Pennsylvania. Decided April 19, 1920.

Limitation of Time for Actions for Injuries

A citizen and resident of North Dakota sued the Canadian Northern, a corporation organized under the laws of the Dominion of Canada, in a federal district court of Minnesota for damages for personal injuries sustained on November 29, 1913, when employed by the defendant as a switchman in its yards at Humbolt, Saskatchewan. He commenced his action on October 15, 1915, almost two years after the date of the accident. By the laws of Canada, where the cause of action arose, an action of this kind must be begun within one year. Section 7709 of the Statutes of Minnesota (1913) reads: "When a cause of action has arisen outside of this state and, by the laws of the place where it arose, an action thereon is there barred by lapse of time, no such action shall be maintained in this State unless the plaintiff be a citizen of the State who has owned the cause of action ever since it accrued." If this statute is valid, it is applicable to the action, which, being barred in Canada, cannot be maintained in Minnesota by a non-resident plaintiff. If, however, the statute is invalid, the general statute of limitations of Minnesota, allowing a period of six years within which to commence action, would be applicable. The Circuit Court of Appeals held the statute unconstitution and void.

The Supreme Court of the United States, per M. Justice Clarke, has reversed the judgment of the Circuit Court of Appeals and holds the Minnesota statute valid. "The laws of Minnesota gave to the non-resident respondent free access to its courts for the purpose of enforcing any right which he may have had, for a year, —as long a time as was given him for that purpose by the laws under which he chose to live and work—and having neglected to avail himself of that law, he may not successfully complain because his expired right to maintain suit elsewhere is not revived for his benefit by the laws of the State to which he went for the sole purpose of prosecuting his suit. The privilege extended to him for enforcing his claim was reasonably sufficient and adequate and the statute is a valid law."—Canadian Northern v. Eggen. Decided April 19, 1920.

Question of Employment on Through Joint Freight Train

Action was brought for death against the Philadelphia & Reading under the federal Employers' Liability Act. The Maryland state courts (132 Md. 540) held that the deceased at the time he was killed was not in the defendant's employ within the meaning of the act. The deceased was in the general employ of the Western Maryland operating from Hagerstown, Md., to Lurgan, Pa., where it connected with the Philadelphia & Reading, which extended from Lurgan to Rutherford. Through freight trains were operated from Hagerstown to Rutherford, on one of which deceased was a brakeman when he was killed. On the previous day a Western Maryland crew, which included the deceased, had taken a train hauled by a Western Maryland engine from Hagerstown to Rutherford, and were returning with another train. The yardmaster at Rutherford, an employee of the Reading, gave them instructions as to the operation of the train, including directions to pick up seven cars at Harrisburg. While picking up these cars deceased was run over and killed by one of defendant's locomotives. The through freight service was conducted under a written agreement between the companies, one clause of which provided that the employees of each company while upon the tracks of the other should be subject to the rules, regulations, discipline and orders of the owning company.

The Supreme Court of the United States affirms the judgment of the Maryland Court of Appeals, holding that under the facts the deceased had not been transferred from the Western Maryland's employ to that of defendant for the purposes of the train movement in which he was engaged; that each company retained control of its own train crews; that what these crews did on the other road's line was done as a part of their duty to their general employer; and that so far as they were subject while on the other company's tracks to its rules, etc., this was for the purpose of co-ordinating their movements to the other operations of the owning company, securing the safety of all concerned, and furthering the general object of the agreement between the companies. M. Justice Clarke dissented.—Hull v. P. & R. Decided April 19, 1920.

Foreign Railway News

The Times Trade Supplement (London) says that locomotives to the value of $254,522 were shipped to the Argentine Republic from Canada in January.

According to El Mercurio, Valparaiso, Chile, a decree has been issued, dated January 31, authorizing Manuel Augusto Maza to build and operate a railway of one meter gage between Lake Yelcho and the Argentine frontier, about 70 kilometers (43 miles).

Fifty persons killed and as many injured, is the report of the casualties in a collision of passenger trains reported on April 24 from Moradabad, India, a place east of Delhi on the Oudh & Rohilkhand Railway. Four coaches were destroyed by fire.

The Mexican government has granted the Mexico North Western permission to increase its freight, passenger and express rates approximately 20 per cent. The increases went into effect on March 4, and were granted because of the inability of the Mexico North Western to earn sufficient funds to meet its operating expenses.

New Locomotives for India

LONDON.

An order for 15 more 2-8-0 class H. S. locomotives has been placed by the Bengal-Nagpur railway with the North British Locomotive Company.

New Rolling Stock Needed in Spain

LONDON.

The Spanish railways are greatly in need of locomotives to replace those which have become worn out during the war. To enable them to purchase these, the railways are pressing the Spanish government to allow them to raise their rates.

The Five-Day Week in Australia

LONDON.

The London Times Trade Supplement says that a five-day week has been successfully instituted in the Western Australian workshops and the government has decided to extend the practice to other departments where the 44-hour week applies; principally to construction gangs, laborers and trackmen.

Increased Demurrage Charges

LONDON.

The Ministry of Transport announces that very gratifying results have followed the increase of the demurrage charges on railway companies' trucks, which became operative on January 1. For February, the figures show that the freight car detention has decreased by 42 per cent as compared with December, representing a saving of over 150,000 car days.

Belgium's Progress Towards Recovery

The British Board of Trade Journal, quoting the Exportateur Belge, gives a table showing the progress made towards recovery in the metallurgical industries in Belgium, from which it appears that the percentage of the pre-war output in locomotives and steam engines is 100; in rolling stock and railway materials, 90 per cent; machine tools, 90; general mechanical production, 70, and electrical construction, 100 per cent.

Proposed New Railway in Australia

An abstract from the Board of Trade Journal (London) states that the Queensland government has submitted proposals to Parliament for the construction of six new lines of railway. The new lines include an extension of the Boyne Valley railway from Many Peaks to the northern end of the line, from Mundubbera to Northern Burnett, 78 miles, and from Monto to Rannes, to open up the Callide valley and prairie lands, 109 miles.

Other proposed lines are a branch railway from Peeramount towards Boonjee, an extension of the Mary Valley railway from Brooloo to Kenilworth, a branch from Gargett to Own's Creek, and a line from Dobbyn to Myally Creek.

Freight Car Building at Woolwich

LONDON.

In reply to a question in the English Parliament, the Deputy Minister of Munitions said recently that the number of freight cars which had been ordered to be built at Woolwich Arsenal was 2,500. He said that the rate of delivery had been adversely affected by the moulders' strike, but that during the week ending March 10, eleven freight cars had been completed and it was hoped to increase the rate of production in the course of the next few weeks.

Egyptian State Railways

LONDON.

The British commercial agent for Egypt has been informed on good authority that during the next five years the Egyptian State Railways will require about $10,000,000 for roadway, bridges, etc., and $15,000,000 for engines and rolling stock; $7,500,000 for larger bridges, $2,500,000 for telegraphs and telephones, as well as additional sums for improvements at stations, increased facilities and so forth, due to increase of traffic.

In addition to this, an annual sum of over $5,000,000 must be debited to revenue for renewals to road way and rolling stock. It is probable that offers will be asked for the supply of about 65 locomotives during this summer for delivery in 1921 and 1922.

French Imports and Exports

PARIS.

The American Chamber of Commerce (Paris), in its bulletin for March 15 gives two items of the imports into France from the United States and Exports from France into the United States, for the calendar year 1919, as against the same period for the year 1918, as follows:

Imports Into France from the United States.

	1919 Francs	1918 Francs
Machines and machinery	643,024,000	391,887,000
Tools and Hardware	279,493,000	311,724,000

Exports from France to the United States.

	1919 Francs	1918 Francs
Machines and mechanical appliances	1,208,000	463,000
Tools and manufactures of metal	1,133,000	758,000

English Locomotive Contracts

LONDON.

English railways are now going outside to place orders for rolling stock, which previously was built in their own shops.

The London & North Western has ordered from William Beardmore & Co., Ltd., 90 locomotives of the 4-6-0 type, with 20½ in. by 26 in. cylinders. The driving wheels are 75. in. diameter. These locomotives will be fitted with Schmidt superheater, Wakefield mechanical lubricator, Joy valve gear and the vacuum brake. They will weigh in working order 66½ tons each.

The Great Northern has ordered 50 locomotives from the North British Locomotive Company, each to be fitted with the Gresley superheater; also 25 locomotives 2-6-0 type from Kitson & Co., Ltd., these to have the Robinson superheater.

Belgian Equipment Orders

LONDON.

The Board of Trade Journal, London, states that the Belgian government has ordered 100 locomotives from Belgian locomotive builders. The price of these will amount to 41,000,000 francs and delivery must be made within 18 months after the confirmation of the order. It has in addition placed orders for 200 locomotives with a British firm, one for 50 locomotives in Canada and one for 100 in the United States. The British engines are to be delivered by the end of June next.

Orders have also been given to Belgian manufacturers for 1,200 passenger coaches, to be delivered within ten months.

The Belgian government also requires 42 new steel coaches for electric trains. These are expected to cost 250,000 francs each. They will be 21 meters (69 ft.) long.

Russian Railways

LONDON.

The Journal des Transports published in a recent issue the following figures giving the percentage of locomotives and cars out of service in Russia.

	Locomotives	Freight cars
May, 1919	48.4 per cent	34.7 per cent
June, 1919	47.4 per cent	29.1 per cent
July, 1919	50.9 per cent	29.3 per cent
August, 1919	51.3 per cent	29.3 per cent

Since June, 1917, the passenger rates have been increased 15 times and freight rates 35 times.

Rumanian Oil to Pay for American Railway Equipment

With reference to the order for 50 locomotives placed with the Baldwin Locomotive Works by the Rumanian Government as noted in the *Railway Age* of April 23, page 1275, the following cablegram from Joseph W. Carroll, charge d'affaires at Belgrade, Jugoslavia will be of interest:

"Arrangements for the sale of a large quantity of railway equipment to the Government of Rumania have just been concluded by an American concern. The Rumanian Government is to pay for the equipment in petroleum, which the American concern will probably sell, at the wells, to an American petroleaum concern. This illustrates the ingenuity that is being used by enterprising Americans in attacking the difficult problems of financing their exports at this time."

British Freight Cars in France

LONDON.

In answer to a question asked in Parliament the Secretary of State for War said recently that the return of freight cars from France to England is dependent on the capacity of the train ferry service, and that it has not been possible, owing to numerous causes, to maintain the anticipated return of 800 to 900 cars a week. The average number of cars returned during the 33 weeks ending March 7, was 363 per week. The present rate of return is approximately 500 per week, and it is hoped to increase the number during the summer months. There are still approximately 13,000 cars in France to be returned to British railway companies and 4,300 belonging to the war department. It is anticipated that all cars will be returned before the end of this year.

English Enginemen Obtain Advance in Wages

LONDON.

The Central Wages Board recently formed under the direction of the Minister of Transport, has granted an increase to engine drivers, motormen, firemen and adult cleaners of one shilling a week retroactive to November 1, 1919, two shillings retroactive to December 1, 1919, and three shillings retroactive to March 1, 1920. This increase has been granted to meet the extra cost of living.

Owing to the fact tha the government has made a partial withdrawal of the bread subsidy on April 1, a further increase in the cost of living is expected and the Central Wages Board will again meet to review the situation when the Ministry of Labor statistics as to the cost of living on May 1 are available. If at any time it is found that an additional increase is justified, it will be made retroactive to April 12, the date on which the price of bread to the consumer was raised.

Chinese Railway Standardization

LONDON.

The following is an abstract of a letter from the Department of Overseas Trade published in the Bulletin of the Federation of British Industries, regarding the position of railway standardization in China:

"His Majesty's Minister at Peking reports that the Committee appointed by the Chinese Government comprises five advisers, of American, Belgian, British, French and Japanese nationality. These advisers are now engaged in the study of railway standards, but full consultation will take place with the engineers of all the Government railways, assembled in conference for the purpose, before any decision is taken. This will ensure full use being made of local experience, and in the meantime everything goes to show that the work of the Committee is proceeding impartially and smoothly."

The letter also says that the sole reason for the purchase of American equipment in unusual quantities is to be found in the fact that it is not possible for the British manufacturers to quote dates for delivery and prices to meet the urgent needs of the Chinese market.

German Railways Under Single Ownership

Associated Press despatches from Berlin dated April 25 report the approval by the National Assembly of the government's purchase of the Federated States Railways at a cost of 40,000,000,000 marks or $8,000,000,000 at normal rate of exchange.

The annual interest incurred in the nation's huge investment is estimated says the despatch at 14,000,000 marks. The government is not over-sanguine with respect to early returns from the investment, in view of the dilapidated condition of the railways, the delayed output from repair shops and continued demands by the men for wage increases.

"The peace treaty we have completed does not present a bewitchingly beautiful face, but it possesses desirable qualities in political and economic directions," said Dr. Bell, the Minister of Transport, in the National Assembly just before the vote was taken. He described the transaction as one of the most gigantic ever effected by any parliament.

The minister added that more than a million employes of the railways will be on the government payroll. He admitted that the government had to pay heavily for a final settlement with the various states.

English Rolling Stock to Be Standardized

LONDON.

Sir Eric Geddes, Minister of Transport, recently outlined the plans of the Ministry of Transport with regard to standardization on the English railroads. He said that the mechanical engineering department of the Ministry was endeavoring to standardize the freight cars, and a commencement had been made by arranging with all railways and all owners of cars that all running gear should conform to certain standards. This he stated would help materially to overcome one of the chief difficulties brought to light by pooling. As a result of pooling, cars which used to work only in specified areas now run all over the country and as they differ in construction, spare parts have often to be sent long distances after them. What this means in time and money may be gathered from the fact that there are something like 500 different types of axle-boxes as well as innumerable types of other essential parts.

With regard to the cars themselves, there is not the least doubt that for certain classes of traffic the object to be aimed at is a car of much higher capacity, for this will lead to a great saving in the weight and length of trains, and consequently in the length of new sidings. Larger cars are not, of course, suitable to all kinds of traffic but for coal traffic they would be of enormous value. In deciding on the size of the car to be used, consideration must be given to existing conditions, to the cost of the alterations to be made in the right of way and structures and what economies would result.

As to the standardization of locomotives, this would lead to economy in manufacture. "But," says Sir Eric Geddes, "the standardization of locomotives is at present limited by the capacity of bridges and roads already built to carry locomotives of a certain size. Bridges and so on cannot be strengthened or replaced in a day and therefore at present we must allow for two or even three classes in each type, say light and heavy, or light, medium and heavy, of which parts could be interchangeable and a considerable reduction effected in the number of types."

The mechanical engineering department is also considering the standardization of signaling apparatus, economies to be effected in workshops, improvement in the plant and equipment of docks, and the economy in the production and use of everything of a mechanical nature connected with transport.

Equipment and Supplies

Locomotives

THE ATLANTIC COAST LINE is inquiring for 5, six-wheel switching locomotives.

THE BOSTON & ALBANY has ordered 6, 4-6-2 type locomotives from the American Locomotive Company.

THE CENTRAL OF GEORGIA has ordered 4, 4-8-2 type locomotives from the American Locomotive Company.

THE SOUTH GEORGIA RAILWAY has ordered one 4-6-0 type locomotive from the Baldwin Locomotive Works.

THE INLAND STEEL COMPANY, Chicago, has ordered one 0-6-0 type locomotive from the American Locomotive Company.

THE EAST BROAD TOP RAILROAD has ordered one 2-8-0 type, narrow gage locomotive from the Baldwin Locomotive Works.

THE SOUTHERN PACIFIC has ordered 15, 2-10-2 type, 15 Pacific type and 10 switching locomotives from the Baldwin Locomotive Works.

THE CHARLOTTE HARBOR & NORTHERN, reported in the *Railway Age* of February 29, as inquiring for 3 locomotives, has ordered 4, 2-8-0 type locomotives from the Baldwin Locomotive Works.

The **Chicago, Rock Island & Pacific,** reported in the *Railway Age* of March 5, as inquiring for 10 Mountain, 10 Pacific and 15 Santa Fe type locomotives, has ordered 35 locomotives from the American Locomotive Company.

Freight Cars

HENRY FORD & Co., Detroit, Mich., is inquiring for two 35-ton coke cars.

THE INTERNATIONAL HARVESTER COMPANY, Chicago, is inquiring for 500 hopper cars of 50 tons capacity.

THE CHICAGO, BURLINGTON & QUINCY has withdrawn its inquiry from 500 box cars and 500 gondola cars.

THE FRUIT GROWERS' EXPRESS, Washington, D. C., is inquiring for from 1,000 to 2,000, 30-ton refrigerator cars.

THE PHOENIX IRON WORKS COMPANY, Portland, Ore., is inquiring for 1,000 tank cars of 8,000 gal. capacity.

THE EAST JERSEY RAILROAD & TERMINAL COMPANY is in the market for from 8 to 12 36-ft. box cars with 30 ton trucks.

THE PENNSYLVANIA EQUIPMENT COMPANY, 1420 Chestnut street, Philadelphia, Pa., is in the market for 12, 80,000-lb. capacity 40 ft. steel underframe box cars; also for 12 eight-wheel, bottom dump, ore cars of from 12 to 15-ton capacity and 36 in. gage.

Passenger Cars

THE CENTRAL OF BRAZIL is inquiring for passenger coaches and sleeping cars.

THE VIRGINIAN RAILROAD is inquiring for 1 club car, 10 passenger coaches, and 4 mail and baggage cars.

Iron and Steel

MITSUI & Co., 65 Broadway, New York, is inquiring for 3,000 tons of plate girders for the Taiwan Railway (Japan), and is in the market for 4,000 tons of galvanized steel transmission towers for the Joban Hydraulic Power Company, Japan, and for 3,000 tons of similar material for the Gumma Hydraulic Power Company, Japan.

Supply Trade News

Frederick A. Molitor, consulting engineer, will remove his office on May 1, from 35 Nassau street, to 143 Liberty street, New York.

The Jerome-Edwards Metallic Packing Company, Chicago, Ill., on April 24, removed to its new factory at 3136-3138 W. Chicago avenue, Chicago.

A. B. Burgess, sales manager of the Powell Machine Company, Worcester, Mass., has been appointed eastern representative of the **Houghton Elevator & Machine Company,** Toledo, Ohio.

On April 30 the New York office of the **Sunbeam Electric Company** (formerly Schroeder Headlight & Generator Company), Evansville, Indiana, was moved from 50 Church street to 52 Vanderbilt avenue, New York.

The Independent Pneumatic Tool Company, Chicago, on May 1, will remove its Detroit, Mich., offices from 736 David Whitney building, to larger quarters at 55 Garfield building. The new offices have 1,500 sq. ft. of floor space.

F. P. Roesch, prior to federal control master mechanic on the El Paso & Southwestern and during federal control supervisor of fuel conservation, Northwestern Region, United States Railroad Administration, has been appointed western manager of the Standard Stoker Co., Inc., Erie, Pa., with headquarters at Chicago.

On April 1, **Dwight E. Robinson** was placed in charge of eastern railway sales for the Du Pont Fabrikoid Company, Wilmington, Del., with offices at 21 East Fortieth street, New York. The selling arrangements previously existing with the Wendell & MacDuffie Company, 61 Broadway, New York, have been terminated.

The partnership lately existing between **L. H. Turner, Jr.,** and **L. W. Garratt,** under the name of **L. H. Turner, Jr., & Co.,** dealers in railway equipment, having been terminated by the recent death of Mr. Turner, the business will henceforth be conducted by Mr. Garratt as its sole proprietor, and under the name of **L. W. Garratt,** 358 Union Arcade, Pittsburgh, Pa.

Peter P. Beck, dealer in railway and manufacturers' supplies, will remove his office and showroom on May 1, from 105-107 Chambers street, New York, to 22 Thames street. Mr. Beck is sales agent at New York for the Bettendorf Company, Bettendorf, Iowa; Wine Railway Appliance Company, Toledo, Ohio; Railway Brake Specialties Company, Toledo, Ohio; Slick-Knox Steel Company, Sharon, Pa.; Sturdi-Truck Manufacturing Company, Holyoke, Mass.; Liberty Tool Corporation, Baltimore, Md.; Howe Waste & Packing Company, Providence, R. I.; Wm. A. Tottle & Company, Baltimore, Md.; and the Nu-ex Fire Appliance Company, Columbus, Ohio.

D. H. Colcord has been appointed advertising manager of the **Square D Company,** manufacturers of safety switches, Detroit, Mich., and Walkerville, Canada. Prior to this change he served in the capacity of director of research engineering. Mr. Colcord came to the Square D Company from the publicity department of the Westinghouse Air Brake Company. Prior to this he was associated with the department of publicity of the Westinghouse Electric & Manufacturing Company, Pittsburgh. Mr. Colcord is known for his contributions to technical and scientific journals and popular magazines. **L. W. Strong,** formerly of the publicity department of the Westinghouse Air Brake Company, has been appointed director of research engineering.

W. H. Patterson, manager, resale section, **Westinghouse Electric & Manufacturing Company,** East Pittsburgh, Pa., has been appointed assistant to manager, industrial department, in charge of metal working and wood working in-

dustries. Mr. Patterson graduated from the electrical engineering course of Perdue University in 1905. The following January he entered the apprenticeship course of the Westinghouse Company, and in 1910 was made manager of the resale section. Mr. Patterson has been identified for a number of years with the development of motors and control apparatus for application to cranes, elevators, hoists, and machine tools. During the war he served on the United States Shipping Board, Emergency Fleet Corporation, Electric Welding Committee.

At the second annual meeting of the **Industrial Car Manufacturers' Institute,** held in Pittsburgh, Pa., on April 20, members of the board of directors were elected as follows: **Lion Gardiner,** vice-president, the Lakewood Engineering Company, chairman; **N. A. Doyle,** vice-president, American Car & Foundry Company; **W. E. Farrell,** president, Easton Car & Construction Company; **J. M. Hansen,** president, Standard Steel Car Company; **J. R. Kilbourne,** vice-president and general manager, The Kilbourne & Jacobs Company; **R. J. Magor,** president, Magor Car Corporation; **J. C. Shirer,** president, the Star Manufacturing Company. Col. James Milliken was re-elected president of the Institute and H. M. Wey secretary. The Institute is really a get-together association of a number of the manufacturers of industrial cars; to procure economical results, promote a spirit of co-operation among its members, provide means for interchange of views affecting industrial car building interests, to preserve equitable conditions not only in the workshop, but in selling practices, to standardize designs and specifications, and to bring about a uniformity in method of inspection, purchase, etc. In order to secure the best results the organization has been divided into four groups, according to the class of cars manufactured, namely, builders of—1, coal mine cars; 2, standard gage dump cars; 3, other standard gage cars, and 4, all narrow gage cars, except coal mine cars.

William N. Keiser has been appointed manager of the general construction equipment department of the **Lakewood Engineering Company,** Cleveland, Ohio. Mr. Keiser was born near Logansport, Ind., and served in the Spanish-American war. He graduated from Purdue University with the degree of electrical engineer. He began work with the General electric Company, for whom he built power houses and underground systems, and then served with a public utility company as chief electrical engineer. Subsequently he was sales manager of the Parsons Company, Newton, Iowa, and then was with the Hydraulic Steelcraft Company, Cleveland, until his appointment as manager with the Lakewood Engineering Company as above noted.

W. N. Keiser

The **Westinghouse Union Battery Company** was recently organized in Pittsburgh, Pa., to produce storage batteries for every industry in which batteries are used. The company will specialize in starting and lighting batteries for renewal in automobiles, although the complete line will include batteries for trucks, tractors, motor boats and airplanes; also for home lighting systems, train lighting and railway signals. **A. L. Humphrey,** president of the Westinghouse Air Brake Company, and active in the management of all of its subsidiary organizations, is chairman of the board of directors of the new company. **D. F. Crawford,** vice-president and general manager of the Locomotive Stoker Company, is president of the new company, and **T. R. Cook,** formerly chief engineer and general production manager of the Willard Storage Battery Company, is vice-president and general manager. **T. S. Grubbs,** vice-president of the Union Switch & Signal Company, is also vice-president and secretary and treasurer of the new organization. The company is now occupying three floors of the Union Switch & Signal Company's factory at Pittsburgh. Its initial production will be from 1,200 to 1,500 batteries a day and the employees to start with will number about 500. It was decided to occupy the present working quarters instead of building a new factory at once, in order to lose no time in starting production. Preparations have been made to build a factory of from two to three times their present capacity on adjoining property. The company expects production to be started in June.

J. J. Thomas, Jr., formerly superintendent of motive power and car equipment of the Mobile & Ohio, at Mobile, Ala., has been appointed district manager of the **Oxweld Railroad Service Company,** Chicago, with headquarters at Mobile. Mr. Thomas entered railway service in 1881 as a fireman on the Selma, Rome & Dalton, now part of the Southern, later becoming a machinist apprentice on the same road. From 1885 to 1898 he was successively locomotive engineer, machine shop foreman, general foreman and master mechanic on the Birmingham & Atlantic. In 1898 he was appointed master mechanic on the Mobile & Ohio, with headquarters at Tuscaloosa, Ala., and was later promoted to assistant superintendent of motive power and car equipment, with headquarters at Mobile. In 1902 he was appointed master mechanic of the Seaboard Air Line, with headquarters at Savannah, Ga., resigning some time later to become master mechanic on the Atlantic Coast Line, with headquarters at South Rocky Mount, N. C. He was appointed superintendent of motive power and car equipment on the Mobile & Ohio in 1909, which position he held until the time of his appointment as district manager for the Oxweld Railroad Service Company.

J. J. Thomas, Jr.

Haskell & Barker Car Company

The announcement of the annual report of the Haskell & Barker Car Co., Inc., Chicago, for the year ending January 31, 1920, published in the *Railway Age* of April 16, page 1218, was inaccurate in stating that a depreciation appropriation of $3,000,000 was deducted from the net earnings of that company. According to the annual report of the company this appropriation amounted to $300,000.

Movies to Show Break Beam Manufacture

A novel method of familiarizing railway men with the manufacture and use of brake beams will be introduced shortly by the Chicago Railway Equipment Company, Chicago, by means of a five-reel film entitled, "Brake Beams—Their Manufacture and Use." The film was taken under the supervision of T. A. Le Beau of the Chicago Railway Equipment Company and traces the developments from the handling of the raw material at the rolling mill until the various parts are assembled into a finished brake beam. Four of the large industrial plants of the country were visited in making the film. It concludes with the brake beam in service showing the damage that results from improperly applied brake beams. It is planned to show the film at various gatherings of railroad executives, at railroad conventions and to groups of workmen, after which it will be sent abroad.

Fairbanks, Morse & Company

The final net profits, made by Fairbanks, Morse & Company Chicago, according to that company's annual report for the year ending December 31, 1919, after providing for all expenses and after setting aside $1,000,000 as a reserve for income and excess profits taxes and for contingencies, amounted to $3,289,254.77. Dividends on the preferred and common stocks for the year have absorbed $900,842.00, leaving the amount of $2,388,412.77 to be transferred to surplus account, which now stands at $18,300,225.37. After deducting the preferred stock dividend, the net profit shown above is equal to 17 per cent on the average common capital and surplus employed in the business during the year, as compared with a net return of 13 per cent in 1918 on the same basis.

In accordance with the provisions of the preferred stock issue there has been set aside, before arriving at the profit, the sum of $100,000 as a sinking fund, which will be used for the retirement of an equivalent amount of preferred stock by purchase during the current year.

During the year the directors voted a special donation of $50,000 in Liberty Loan Bonds to the Employee's Pension Fund making the total contributions of the company to this fund during the year $115,874.49. The accumulated funds in the hands of the Trustees of the Pension Fund at December 31 amounted to $505,256.05.

Since the date of the last report the balance of the unissued capital stock, namely 1,050 shares of common stock and 2,778 shares of preferred stock has been disposed of. The common stock was sold pro rata to the common stockholders at $100 per share, the preferred stock being sold to employees and others at par.

The present accounts show the capital stock of the company as it existed on December 31, 1919, but since the close of the fiscal year the common capital stock has been increased from 25,000 shares of $100 each to 325,000 shares of no par value. Of this increase, 250,000 shares have been exchanged with the common stockholders for the 25,000 shares then outstanding and 22,617 shares have been sold to employees on extended terms, the payments to be made during a period of three years. Of the balance, 37,500 shares have been sold to interests outside the company and the remainder reserved for future disposition by Board of Directors.

The balance sheet is as follows:

ASSETS

Cash on hand and in banks:		
At Chicago, branch houses and factories....	$858,956.03	
Accounts receivable:		
For merchandise sold and work done and miscellaneous accounts owing at Chicago, branch houses and factories, less reserves.	5,137,277.98	
Notes receivable:		
At Chicago and branch houses, less reserves	1,084,944.33	
Inventories of merchandise:		
On hand and on consignment at Chicago and branch houses, and work in process, finished goods and raw material at factories..	11,138,538.47	
Foreign branch houses:		
Balances owing at date, less reserves.....	799,683.10	
Current investments	213,339.02	
Total current assets.....		$19,232,738.93
Deferred charges		54,667.31
Furniture and fixtures.....		112,906.45
Machinery, tools and equipment:		
At Chicago branch houses and factories, including patterns and drawings		3,810,711.89
Factory buildings and real estate.....		2,673,175.80
Warehouse buildings and sundry real estate.....		343,699.73
Patents, trade marks and goodwill.....		1.00
Special investment:		
Capital stock of E. & T. Fairbanks & Company, St. Johnsbury, Vermont		1,500,000.00
		$27,727,901.11

LIABILITIES

Accounts payable:		
Owing for goods purchased and expenses at Chicago, branch houses and factories, and for credit balances on sales ledgers.....	$3,038,015.94	
Accrued expense	245,764.57	
Total current liabilities.....		$3,283,780.51
Reserve for taxes and contingencies.....		1,643,895.23
Capital stock—authorized and issued:		
Common stock	$2,500,000.00	
Preferred stock	2,000,000.00	
		4,500,000.00
Surplus:		
Sinking fund for redemption of preferred stock	$100,000.00	
General surplus	7,772,710.23	
Special surplus	8,039,102.37	
Undivided profits as per attached statement..	2,388,412.77	
		18,300,225.37
Contingent liability on notes under discount...	$568,824.42	
		$27,727,901.11

Railway Financial News

ATLANTA & WEST POINT.—W. L. Mapother has been elected a director succeeding Milton H. Smith, resigned.

CHICAGO UNION STATION COMPANY.—A syndicate composed of Kuhn, Loeb & Co., the National City Company, Lee, Higginson & Co., the First National Bank of New York, and the Illinois Trust and Savings Bank of Chicago, are offering $10,000,000 43-year 6½ per cent first mortage bonds of the Chicago Union Station Company. The bonds are being offered at 98½ and interest to yield about 6.60 per cent.

DELAWARE & HUDSON.—See editorial elsewhere in this issue.

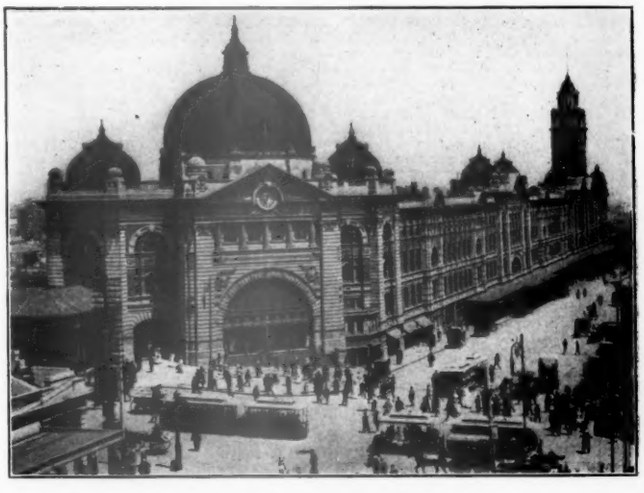
MARSHALL & EAST TEXAS.—The Texas & Pacific has purchased a portion of the Marshall & East Texas Railroad from Receiver Bryan Snyder for $17,500.

PENNSYLVANIA.—The New Jersey Public Utility Commission has approved the application of this company for the issuance of $50,000,000 of general mortgage bonds at par.

TEXAS & PACIFIC.—*See* Marshall & East Texas.

WESTERN PACIFIC.—The holders of the preferred stock who received 4 per cent in 1919 instead of 6 per cent the stock calls for, may receive the 2 per cent which was not paid them last year in the form of additional dividends, provided compensation is received from the government sufficient to allow for such payment. A circular sent to the preferred stockholders says, in part:

"The board of directors are advised by counsel that if as a result of this pending proceeding, the Western Pacific Railroad Company is awarded as compensation a sum which may properly be credited to income for any period on account whereof full 6 per cent dividends have not been paid, and there is thus made available a fund for dividends on account of such period at a rate in excess of that already paid, then, though the preference granted the preferred stock of this corporation is not cumulative, it will nevertheless be proper, if then existing conditions in the judgment of the directors permit the disbursement, for this corporation to pay the holders of its preferred stock on account of the period referred to additional sums which, together with such dividends as shall actually have been paid, will absorb the profits of such period available for distribution up to but not exceeding the full amount required for dividends on the preferred stock at the rate of 6 per cent per annum.



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The Railroad Station in Melbourne, Australia

ANNUAL REPORT

The Delaware and Hudson Company—Ninetieth Annual Report

New York, N. Y., April 1, 1920.

To the Stockholders of
The Delaware and Hudson Company:

The following presents the income account of your company for the year 1919, arranged in accordance with the rules promulgated by the Interstate Commerce Commission, with comparative results for the year 1918:

	1919		COMPARISON WITH 1918 Increase or Decrease
Compensation accrued under Federal Control (on basis of Standard Return) for possession, use and control of railway property of the company and its leased and operated lines	.....	$7,415,148.72	.....
OTHER CORPORATE INCOME:			
Miscellaneous rent income	$56,979.37	.....	—$80,218.14
Income from lease of road	86,763.87	.....	—16,059.10
Miscellaneous non-operating physical property	85,942.05	.....	63,440.95
Dividend income	934,267.98	.....	—3,895.12
Income from funded securities	234,251.46	.....	9,018.63
Income from unfunded securities and accounts	377,089.87	.....	—70,010.08
Income from sinking and other reserve funds	107,245.01	.....	—54,923.12
Miscellaneous income	1,585,378.24	.....	432,931.96
TOTAL OTHER CORPORATE INCOME	.....	3,467,917.85	$280,285.98
GROSS INCOME	.....	$10,883,066.57	$280,285.98
DEDUCTIONS FROM GROSS INCOME:			
Railway operating expenses	$215,048.62	.....	119,278.17
War taxes	138,000.00	.....	10,972.48
Miscellaneous tax accruals	28,542.53	.....	10,906.26
Rent for leased roads	1,954,123.97	.....	7,137.89
Miscellaneous rents	3,268.00	.....	3,268.00
Interest on funded debt	2,919,237.04	.....	—19,081.22
Interest on unfunded debt	369,382.36	.....	226,654.35
Miscellaneous income charges	650,459.57	.....	30,938.00
TOTAL DEDUCTIONS FROM GROSS INCOME	.....	6,278,062.09	$390,073.93
NET INCOME—THE DELAWARE AND HUDSON COMPANY CARRIED TO GENERAL PROFIT AND LOSS	.....	$4,605,004.48	—$109,787.95
PERCENTAGE TO CAPITAL STOCK	.....	10.83	.26

FINANCIAL.

The capital stock of The Delaware and Hudson Company, on December 31, 1919, was $42,503,000, there having been no change during the year.

The total funded debt on December 31, 1919, was $65,143,000, a reduction of $867,000 having been effected during the year by the purchase and cancellation of that amount of First Lien Equipment bonds through the sinking fund established in connection with their issue.

The sum of $395,040, being one per cent of the par value of the First and Refunding Mortgage Gold bonds outstanding on June 1, 1919, was paid during the year to the trustee under the First and Refunding Mortgage, making the total paid to December 31, 1919, $3,241,190. This amount has been expended in additions and betterments to the mortgaged property in accordance with the trust agreement.

There was accumulated in the Coal Department sinking fund during the year, in accordance with the ordinance passed on May 9, 1899, and amended on May 10, 1910, $353,787.82, which has been applied to reimburse the treasury for coal lands and unmined coal in Pennsylvania.

The usual payment of $650,000 required under the terms of the First Lien Equipment Trust indenture, was made, making the total paid to date $7,800,000. This has been increased by accumulations of interest on balances and investments.

During the year there was received from the United States, in partial payment of compensation for the taking over of the company's property in December, 1917, and its subsequent occupation and use by the United States, the sum of $7,201,100, and the company borrowed from the United States Railroad Administration, without security, $608,000; making a total of $7,809,100 for the year, which with the amount for 1918, namely, $6,290,000, makes a total for both years of $14,099,100. The Interstate Commerce Commission certified to the President, under the Act of March 21, 1918, that the average income of your company's railway for the three years that ended June 30, 1917, was $7,409,600.12. On that basis your company received $720,100.24, or 4.86 per cent less than it should have received to December 31, 1919. This balance, subject to any adjustments which may be necessary on account of additions to the property during Federal control and for other purposes, will be provided for in the final settlement with the Government.

The changes in the accounts "Current Assets" and "Current Liabilities" are principally the result of relations with the Federal government consequent upon the taking over of your railway. During the year the Railroad Administration accepted a collateral note, in the sum of $1,900,000, in reimbursement for additions and betterments made by the Director General, and two notes aggregating $2,410,000 to apply in liquidation of an open account based upon the current assets and liabilities taken over at the end of 1917 and subsequent operations in connection therewith. These notes were insisted upon by the Railroad Administration although any balance resulting from these transactions was amply secured by cash and materials taken over with the railway property.

COAL DEPARTMENT.

The anthracite produced by your system corporations during the year 1919, including the product of washeries, aggregated 8,205,495 long tons, a decrease of 853,733 tons, or 9.42 per cent below 1918. The year's output was 12.27 per cent of the total output of Pennsylvania mines and washeries, which was 66,855,311 long tons or 12.78 per cent below 1918. The decrease in production, compared with 1918, was almost entirely in the output of the washeries. The demand for steam sizes was very much below 1918 and, as these sizes make up nearly all the coal recovered from the culm banks and prepared in the washeries their operation was necessarily less constant and extensive than during the previous year.

The demand for domestic sizes of anthracite was good throughout the year, except during February and March, and every effort was made to maintain production. Underground development was duly prosecuted and the properties were fully maintained.

In February the United States Fuel Administration relinquished most of its control over the production and distribution of anthracite.

On January 22, 1919, Plymouth No. 5 Breaker was entirely destroyed by fire. Clearing of debris began immediately and was followed at once by construction of foundations for a new structure and the erection of a larger and more efficient breaker equipped with the most modern machinery. Vigorous prosecution made it possible that on June 2, 1919, only 131 days after the fire, the new plant was complete and began preparing coal. This breaker has a capacity of 6,000 tons per day and is built of steel with the minimum of inflammable material so that the fire-risk is reduced to the lowest practicable limit. The structure replaced was of wood. While construction was in progress the coal produced in the Plymouth District was transported in railroad cars to other system breakers so that there was little reduction in output or in the work offered to the mine employees, thus making it possible to keep the organization intact.

The calendar year 1919 was the first since 1915 in which there was no upward revision of the wages-scale provided for in the agreement between the employees and the mine owners. The wages rates which took effect on November 1, 1918, as explained in the report for last year, were in force throughout the year. The term of the present agreement will expire with the close of business on March 31, 1920, and the employees have formulated proposals for a new agreement, among which are the following:

1. That the next contract shall be for not more than two years, instead of four years as provided in recent agreements.
2. That all contract wages rates shall be increased sixty per cent and all men working by the day shall receive a minimum increase of $2.00 per day.
3. That a working day of six hours, from bank to bank, shall be established for all classes of labor.
4. That work shall be carried on for only five days per week instead of six days as at present.
5. That all employees shall be allowed one and one-half times the standard wages for ordinary overtime and double the standard pay for work on Sundays and holidays.
6. That only members of the Union shall be employed (the "closed-shop") and that there shall be full recognition of the United Mine Workers of America.

The proposals include other items, some of them of a rather technical nature and involving large sums of money. Those outlined above indicate, however, the extent and radical character of the views that may be pressed by representatives of the employees. Negotiations have begun but it is as yet too early to forecast the result. Pending these negotiations, work is in progress at all operations, under an agreement that any change that may be made shall be retroactive to April 1, 1920.

RAILROAD DEPARTMENT.

The United States continued in possession, throughout 1919, of your railway property and that of your system corporations in the United States, together with your boat lines operating on Lake Champlain and Lake George, and these properties continued to be operated through the United States Railroad Administration. All operations during the year were for the account of the United States which were responsible for all expenses of operation, including maintenance, and for all taxes except war taxes, and for compensation, in the nature of rent, for your temporary expropriation, in accordance with a contract with the Director General of Railroads, acting for the United States and for the President, which was executed on December 9, 1919. The compensation stated in this contract, determined by the Interstate Commerce Commission in pursuance of the Act of Congress of March 21, 1918, for all system property taken under Federal control, and possibly subject to some further adjustment, is at the annual rate of $7,480,204.83. In addition you will be entitled to compensation in respect of additions to the properties provided for your account during the period of Federal control. The compensation thus secured is less, in the opinion of your officers, than the *just compensation* required in such cases by the Constitution of the United States, the right to which is commonly supposed to be fully protected by the Bill of Rights. In other respects the contract is regarded as unsatisfactory and as failing to accord that protection to the rights of ownership which was expressly promised by the President's proclamation of December 26, 1917, and plainly intended in the Act of Congress of March 21, 1918. The terms of this contract were, in every practical sense, dictated by officers of the Railroad Administration. Federal representatives were met in your behalf, but not in open negotiation and your representatives were never free agents. The alternatives were the acceptance of the proffered contract or its rejection; that is to say, the acceptance of inadequate compensation and harsh terms, on the one hand, or, on the other, the possibly indefinite postponement of compensation and the uncertainties and delays of litigation involving unprecedented conditions. Confronted by conditions in which justice delayed might prove as injurious as justice wholly denied it seemed more in your interest to accept an immediate though unsatisfactory definition of the terms on which your property was taken and held than to press to solution questions of corporate rights and public obligation which would certainly require years for judicial determination and would still leave the ultimate settlement to depend upon political action.

Contemporaneously with the execution of this contract your company was required formally to accept fifteen hundred freight cars, one thousand 55-tons hopper cars and five hundred 50-tons box cars, the cost of which, not yet accurately determined, will not be less than $3,912,500 nor more than $4,365,545. This additional equipment was not accepted until every available and proper means of convincing the authorities of the Railroad Administration that your company ought not to be forced to this additional

investment had been exhausted, nor until your officers had been told that no contract under the Act of March 21, 1918, providing compensation for the use of your railway, would be executed by the Director General until such action had formally been taken. Under this practical coercion it was considered that the objections to the acceptance of the equipment were less than the objections to being forced into a situation in which all the relations arising out of Federal control would necessarily become the subject of litigation. In authorizing the acceptance of these cars your Board of Managers adopted resolutions as follows:

> WHEREAS, the Director General of Railroads of the United States has purchased and allocated to this Company five hundred (500) single sheathed box cars, at the price each of approximately $3,050.00, or $1,525,000.00 in the aggregate, and one thousand (1,000) 55-T hopper cars, at the price each of approximately $2,817.00 or $2,817,000.00 in the aggregate, making a total of $4,342,000.00 for said equipment; subject, however, to the rights of the company under Section 8 of the contract proposed to be entered into between this Company and the said Director General, for the possession, use, control and operation of the Company's railroads and systems of transportation, in case a loss is claimed in respect of the foregoing equipment; and the said Director General has demanded that this Company accept and purchase said equipment at a price not exceeding $4,342,000.00* and
>
> WHEREAS, an understanding has been effected between the Director General and representatives of this Company and other corporations owning railroad properties, to the effect that the purchase of equipment obtained in the manner aforesaid may be financed under a national equipment trust, to be provided for with the aid and co-operation of the United States Railroad Administration, in such manner that the amounts necessarily to be provided on behalf of this Company can be repaid serially and that the interest thereon will not exceed six per cent per annum, and
>
> WHEREAS, although the officers of this Company have protested that said additional equipment is not necessary or desirable for any corporate purposes or to render any services performed by the railway owned by this Company and that the purchase thereof at the prices aforesaid or at any prices approximately commensurate with the cost at which said Director General obtained such equipment will cause a loss to this Company, said Director General has pressed and insisted upon his said demand, and has now made acquiescence by this Company and the acceptance and purchase of said equipment a condition of the execution by himself, on behalf of the United States and of the President of a contract, as provided by the Act of Congress of March 21, 1918, for the possession, use, control and operation of the properties of this Company and its subsidiaries which were taken under Federal control by the President of the United States by his Proclamation of December 26, 1917, and has refused to enter into such contract unless this Company agrees to accept and purchase said equipment at the prices aforesaid, and
>
> WHEREAS, it is desirable that this Company should have a contract for such possession, use, control and operation of the properties aforesaid and a contract has been conditionally tendered by said Director General and this Company has been advised that said contract will be executed by him, on behalf of the United States and of the President, provided this Company does agree to purchase and accept said equipment, and the objections to such acceptance and the losses to be entailed thereby are less serious than the objections to be forced to do without the contract aforesaid and less serious than the losses which would be threatened by the absence of such contract.
>
> Now, THEREFORE, in consideration of the facts recited above, the President and the Vice-President of this Company, or either of them be, and they are hereby authorized formally to agree, for this Company, to accept and purchase said equipment, the price thereof not to exceed $3,050.00 for each of said five-hundred (500) single sheathed box cars or $2,817.00 for each of said one thousand (1,000) 55-T hopper cars, and the total price not to exceed $4,342,000.00 and to enter into said agreement to accept and purchase in such form as may be required by said Director General. And said officers are further empowered and authorized to make such arrangements for financing said purchase, either through an equipment trust or otherwise, as may to them seem best for the interests of the Company with full power and discretion in the premises.

*The prices stated in the foregoing were those originally and tentatively indicated by the Railroad Administration. There was some subsequent revision of the estimates and, as they now stand, the minimum and maximum prices are as stated in the text.

The position taken by the Director General in making acceptance of this equipment a condition prerequisite to the execution of a contract for compensation, is believed to evidence acquiescence, on the part of the Railroad Administration, in the view widely held by railway officers and counsel that neither in the Act of March 21, 1918, nor in the contract dictated by the Railroad Administration is to be found authority to compel any railway corporation to make such an addition to its property or to its investment. The intention of Congress that all additional equipment deemed necessary should be obtained for the account of the United States seems incontestably established by the terms of the sixth section of the Act of March 21, 1918.

Early during the period of Federal control, the Director General of Railroads ordered from car-builders 100,000 freight cars, the determination to do so probably expressing his purpose most amply to provide in advance for the maximum demands which the exigencies of war could possibly make upon the transportation agencies which had been seized under the war-power and placed under his control. It does not appear that in connection with this action any consideration was given to the financial condition or equipment requirements of any particular carrier or the normal necessities of the railway industry as a whole. At the time these orders were entered it was doubtless intended that the new equipment should become the property of the United States and, at the end of Federal control, be subject to such disposition as Congress might provide. The decision to make a compulsory distribution of these cars among railway corporations, forcing certain carriers to become obligated for their cost at the excessive prices of the war period, was apparently an afterthought derived from the failure of the Railroad Administration to keep its expenses within the limits of its income, the reluctance of Congress to meet additional deficits and the financial pressure which resulted. Your officers are unable to find that in the distribution which was enforced, there was any genuine inquiry as to the sufficiency of the equipment already owned by the companies to which allocations were made, as to the specific character of their equipment requirements or as to prospective changes in the nature and volume of their traffic. In other words, the distribution decided upon appears to have been purely arbitrary and took no account of the generation-long controversy between roads originating and roads distributing traffic, between roads lending and roads borrowing cars. On behalf of your company, attention was called to the large favorable balance in "hire of equipment" which your system has enjoyed over a ten years period, to the special character of its position and traffic and facts and figures were adduced showing the complete adequacy of the equipment already owned. These representations did not suffice either to obtain a withdrawal of the official demand or to induce a reduction in the number of cars allocated. This was the more disappointing in view of the fact that similar representations on behalf of other carriers resulted more favorably.

Under an agreement with the Director General, these cars have been placed under an equipment trust which secures the entire purchase price, which is to be their cost as finally determined in accordance with the contracts under which they were manufactured. Payment will be made in fifteen equal, annual installments, the first to fall due on January 15, 1921, with interest at the rate of six per cent. Notes in the total sum of $3,912,000 have already been issued to the Director General under this trust, and additional notes will be given in case the cost, as finally determined, exceeds that figure. The maximum possibly required under this agreement is $4,365,545.

The Transportation Act of 1920 is primarily an effort to provide for the readjustments necessitated by the restoration of the railways to their owners and the anticipated return to normal conditions. It contains, in addition, important changes in the regulative system some of the defects of which, repeatedly illustrated in these reports, were demonstrated beyond all controversy, during the war-period. Probably no informed individual now doubts that except for these defects the dangerous and costly expedient of Federal control would have been wholly without justification or excuse.

The immediate period of readjustment is provided for in the Act by the creation of a revolving fund of $300,000,000 out of which loans, for periods of not more than five years and at six per cent, may be made to carriers and by guaranteeing to those which accept stated conditions, for a period of six months ending with August 31, 1920, the "standard return" computed in accordance with the Act of March 21, 1918. Your Board has accepted the conditions of this guarantee and has thereby pledged your company to pay to the United States any railway earnings during the period from March 1 to August 31, inclusive, in excess of the amount guaranteed.

A permanent provision is that the carriers subject to the regulative system—

> "as a whole, or as a whole in each of such rate groups or territories as the Commission shall from time to time designate,"

shall be accorded rates that will—

> "under honest, efficient and economical management and reasonable expenditures for maintenance of way, structures and equipment, earn an aggregate annual net railway operating income equal, as nearly as may be, to a fair return upon the aggregate value of the railway property of such carriers held for and used in the service of transportation."

The Interstate Commerce Commission is required from time to time to determine and make public the percentage rate deemed to constitute the "fair return" contemplated by the foregoing, and in fixing such rate to—

> "give due consideration, among other things, to the transportation needs of the country and the necessity (under honest, efficient and economical management of existing transportation facilities) of enlarging such facilities in order to provide the people of the United States with adequate transportation."

For a period of two years, however, from March 1, 1920, to February 28, 1922, inclusive, the determination of the rate constituting a fair return is taken out of the powers conferred on the Commission and the rate is fixed by the statute at five and one-half per cent, with an additional one-half of one per cent which, in the discretion of the Commission, may be allowed for the purpose of providing for expenditures chargeable to capital. Earnings in excess of the statutory "fair return" and also in excess of six per cent upon the value of the property are to be equally divided between the United States and the carrier, the portion of the latter to be accumulated, to an aggregate equal to five per cent of such value, as a special reserve fund, available, only during periods of inadequate earnings, for certain income deductions and dividends. The portion taken by the United States is also to constitute a special fund, to be administered by the Interstate Commerce Commission and, in the extent deemed necessary and according to the terms of the statute, to be available for use—

> "in furtherance of the public interest in railway transportation either by making loans to carriers to meet expenditures for capital account or to refund maturing securities originally issued for capital account, or by purchasing transportation equipment and facilities and leasing the same to carriers, . . ."

It is to be noted that the "fair return," whether under the temporary determination by Congress or subsequently under determination by the Commission, is to be an *average* return for all the railways of the country or for groups of railways designated by the Commission. An average necessarily represents items some of which are above and others below the average. Provision is made for taking half the excess in the case of railways that earn more than the average and for controlling such railways in the use of the moiety they may retain. But there is no provision for making up to those below the average all or any part of the deficiency below the statutory "fair return." Question has been made as to the right of Congress to take from any corporation, except by taxation, any part of its earnings at rates fixed by public authority as reasonable and just; it is at least equally questionable whether Congress has power to enforce a system of rate-making which, by its terms, plainly requires some carriers to render services for less than a fair return.

While your railway was under Federal control your income account was not affected by the operating results obtained by the Railroad Administration and these results are of importance only to the extent that they indicate the conditions under which the property is returned to your possession and control. All the following data relating to operating results have been supplied by the Railroad Administration.

The railway operating revenues amounted, in 1919, to $34,749,709, which was *$40,155* or about *one-eighth of one per cent less* than in 1918 and $4,760,310 or 15.87 per cent more than in 1917. Operating expenses amounted to $31,671,504, an increase of $317,720 or 1.01 per cent over 1918 and $8,221,551 or 35.06 per cent more than 1917. Operating income, before deduction of taxes, was, therefore, *$357,875* or *10.42* per cent *lower* than in 1918 and $3,461,241 or 52.93 per cent below 1917.

Freight receipts were *$621,482* or *2.06* per cent *less* than in 1918 but $4,136,081 more than in 1917. Total freight movement amounted to 3,531,432,611 ton-miles, which compares with 4,062,078,074 in 1918 and 3,954,096,760 in 1917; the *decrease* from 1918 being *530,645,463* ton-miles or *13.06* per cent and that from 1917 being *422,664,149* ton-miles or *10.69* per cent. Average receipts per ton-mile amounted to 8.35 mills in 1919, 7.41 mills in 1918 and 6.41 in 1917, the gain amounting to 12.69 per cent over 1918 and 30.27 per cent over 1917. There were no important changes in freight rates during the year and the gain in the average receipts per ton per mile results from the fact that the advances made by the Director General in 1918, and operative for only a part of that year, were in force throughout the whole of 1919. There were no very significant changes in the relative volume of different kinds of traffic, as compared with 1918, the total reduction being distributed among the various classes and attributable to the termination of actual war. Diversion of traffic from your lines, by reason of the orders and policy of the Railroad Administration, continued throughout the year.

Passenger movement aggregated 132,884,475 passenger-miles, which is to be compared with 112,180,679 miles in 1918 and 129,620,729 in 1917. The increase over 1918 was 18.46 per cent and that over 1917 was 2.52 per cent. Mileage of passenger trains increased 10.07 per cent over 1918 but remained *14.77* per cent *below* 1917. Passenger-car-miles show an increase

of 15.42 per cent over 1918 and a *decrease* of *12.96* per cent under 1917. Average receipts per passenger per mile travelled amounted to 2.45 cents, comparing with 2.50 cents in 1918 and 2.34 cents in 1917. Per passenger train-mile these receipts increased from $1.14 in 1917 and $1.36 in 1918 to $1.44, the increase being 5.88 per cent over 1918 and 26.32 per cent over 1917. Per passenger-car-mile the increase was 23.22 per cent over 1917 and six-tenths of one per cent over 1918 to an average of 28.60 cents in 1919. The increased passenger travel was due to renewed efforts to stimulate such business, the Railroad Administration having sought to discourage non-essential movement of passengers throughout the previous year. In June, 1918, the Railroad Administration advanced the standard passenger rate to three cents per mile and this rate was in force throughout the entire year 1919. That this did not more materially influence the average passenger-mile receipts is due to the extensive movement of soldiers, sailors, clergymen and others at special rates lower than the standard.

Express revenue increased $97,222.00, or 21.77 per cent, of which $34,498 represents an adjustment on account of understatements prior to the beginning of the year and $62,724 is your railway's portion of the increase in express receipts resulting from the general advance in express rates which the Railroad Administration instituted on January 1, 1919.

Per diem demurrage rates were reduced on July 20, 1919, from $3.00, $6.00 and $10.00 charged, respectively, for the first four days; the fifth to seventh days, inclusive, and the eighth and all subsequent days, to $2.00 for the first four days and $5.00 for each subsequent day. This chiefly accounts for *reduction* of *$207,529*, or *59.99* per cent, in receipts from demurrage.

Miscellaneous revenue increased $144,465, or 147.64 per cent, chiefly representing unusually large receipts from storage charges, resulting from the removal from storage in 1919 of a large volume of anthracite which had been placed in storage in 1918.

By the Act of Congress of July 28, 1916, it became the duty of the Interstate Commerce Commission to establish rates for railway services in the transportation of the mails and to make rules governing their application. This duty has just been performed and the judgment of the Commission requires considerable increases over the rates recently paid by the Post Office Department. The new rates are to be retroactive to November 1, 1916, and it is estimated that the adjustment should benefit your company to the extent of $43,750, representing underpayments between November 1, 1916, and December 31, 1917. The adjustment covering the period of Federal control will be with the Railroad Administration and will have no effect in your accounts. The new rates will somewhat increase your future revenue from mail service and you will be relieved of operating expenses in the amount of about $12,000 per year, as the Post Office Department will hereafter assume the expense of handling the mails between your stations and the post offices.

Operating revenues, as already noted, increased $40,155 over 1918 (although freight movement *decreased* more than one-eighth) and $4,760,310 over 1917 (in comparison with which the movement of 1919 was *reduced* more than one-tenth). Compared with 1918, expenses for maintenance of way and structures increased $440,341, or 11.78 per cent; expenses for maintenance of equipment increased $443,993, or 4.66 per cent, and transportation expenses *decreased $949,316*, or *5.73* per cent, a reduction wholly due to *decreased* freight movement. Compared with 1917, expenses for maintenance of way and structures increased $1,655,895, or 65.66 per cent; expenses for maintenance of equipment increased $3,317,824, or 49.80 per cent, and transportation expenses increased $2,860,571, or 22.44 per cent. These comparisons with the last year of corporate operation, prior to Federal control, show the very large extent in which the ratio of expenses to work accomplished was raised while your property was operated by the Railroad Administration.

The wages of enginemen and trainmen were further increased on January 1, 1919, and those of shopmen on May 1, 1919. Other increases, over the wages paid in 1918, resulted from interpretations of its previous orders which were promulgated by the Railroad Administration during 1919. Disturbance of established relations among the rates of compensation paid to different classes of employees, resulted from the adoption of the recommendations of the commission of which Honorable Franklin K. Lane was chairman and the numerous advances in wages thus originated. Much of the present unrest on the part of the employees is attributable to this breaking down of adjustments sanctioned by the practice of many years and that had long been accepted.

GENERAL REMARKS

The business of the United States waits upon the restoration of normal conditions at home and abroad. The chief domestic obstacles to the resumption of progress are (1) the extremely low purchasing power of money, (2) continued absorption of liquid capital by the Federal government and (3) excessive and badly adjusted taxation. These conditions may be separately indicated although they are closely related and interdependent. For example, low purchasing power of money, commonly suggested by the popular phrase "high cost of living," is in part a consequence of the unprecedented extent in which high taxes have been made a part of the cost of every productive process, while in some degree the volume of taxation is necessarily augmented in order to meet increased governmental expenses resulting from the high level of prices.

The diminished purchasing power of money is sufficiently indicated by the index numbers of wholesale prices compiled and published by the Bureau of Labor Statistics of the United States. These numbers, the year 1913 being used as the basis of comparison, i. e., 100 per cent, are:

Year	Average wholesale prices of "all commodities" compared with 1913	Year	Average wholesale prices of "all commodities" compared with 1913
1913	100	1917	176
1914	100	1918	196
1915	101	1919	212
1916	124		

In considering the foregoing it is desirable to bear in mind that the prices of 1913, the year used as the basis of the comparisons, represented a great advance which had been substantially continuous since 1896. The prices of 1913 averaged more than fifty per cent higher than those of 1896, and about eighteen per cent higher than those of 1905. The upward movement of prices during the last half of the year 1919 was much more rapid than during any previous six months' period.

The easy conclusion that such advances in prices, to which so far as they represent necessaries of life all costs of production must be adjusted, are fully explained by the term "inflation" will not suffice. Money in circulation in the United States has greatly increased, but not in the degree required by the theory suggested. The data are as follows:

July 1	Gold and gold certificates	Silver and currency	Total
1913	$1,612,398,508	$1,751,339,941	$3,363,738,449
1914	1,637,693,820	1,764,321,607	3,402,015,427
1915	1,662,981,438	1,906,238,136	3,569,219,574
1916	2,051,073,561	1,973,057,006	4,024,130,567
1917	2,428,226,886	2,335,348,746	4,763,575,632
1918	1,932,430,775	3,446,996,649	5,379,427,424
1919	1,715,173,257	4,125,853,271	5,841,026,528
1920*	1,270,196,627	4,690,186,239	5,960,382,866

*January 1, 1920.

While these figures show very rapid increase in the volume of the circulating medium, it will be noted that the increase by no means coincides with the increase in prices, nor was there any accentuation of the rate of increase in the monetary supply which compares with the great acceleration in the upward movement of prices that occurred during the last half of 1919. Statistics of bank clearings show, however, that the work done by the average monetary unit can be and has been greatly increased, probably to supply the larger funds required to do business at the higher levels of prices and wages. The figures are:

Year	Total bank clearings	Average per $1.00 of money in circulation
1913	$169,815,700,600	$50.48
1914	155,242,201,536	45.63
1915	187,817,564,545	52.62
1916	261,855,773,663	65.07
1917	306,940,364,112	64.43
1918	332,354,026,463	61.78
1919	417,519,523,388	71.48

Although the volume of money in circulation decreased to $5,846,086,199 on February 1, 1920, the first two months of the year show an increase in bank clearings of 28.50 per cent to an aggregate for the period of $74,832,130,591, which compares with $58,236,285,740 in the same portion of 1919. These data suggest the operation of an impulse towards high prices other than the volume of money in use. Increases in bank loans and in individual deposits have been roughly proportionate to the increases in coin and currency in circulation. Such loans, reported by the Comptroller of the Currency, stood at $15,288,357,283 in 1914, and at $27,114,262,000 on June 30, 1919, while the growth in deposits was from $18,517,232,879 in 1914 to $33,180,744,000 in 1919.

Prior to the year 1917, early in which the United States became engaged in the conflict with the Central Powers of Europe, Federal expenses, not including the cost of the Panama Canal, had never in any year reached a total of three-fourths of a billion dollars. The highest for any year, 1915, was $731,399,759 and the average for ten years, 1907 to 1916, inclusive, was $664,244,727. For the first eight months of the current fiscal year, that is from July 1, 1919, to February 29, 1920, the corresponding aggregate was $4,107,732,751. During February, 1920, these expenses amounted to $274,950,739, or at an annual rate in excess of $3,450,000,000. Although the expenditures for these periods show a notable reduction below the eight months from July 1, 1918, to February 28, 1919 (during a large part of which war was actually in progress), when the total was $11,254,465,355, it was still necessary to rely heavily upon the issue of Treasury certificates of indebtedness and the proceeds of such issues covered into the Treasury (but used, in part, to redeem certificates of the same character) during the later period amounted to $9,709,974,969. The total of such certificates outstanding on October 31, 1919, was $3,733,423,800.37, representing 14.38 per cent of the total interest bearing debt of that date which was $25,969,641,645.36. Banking resources are also absorbed in loans made to enable purchases of United States bonds, these loans being repeatedly extended. Data showing the combined resources and liabilities of the twelve Federal Reserve banks show that the following conditions existed on the dates indicated:

Twelve Federal Reserve banks	1919 March 14	1920 March 12
Total resources	$5,247,803,000	$6,127,705,000
Bills on hand:		
Total	2,148,502,000	2,927,618,000
Per cent of resources	40.94	47.78
Bills on hand:		
Total	$2,148,502,000	$2,927,618,000
Secured by Government war obligations:		
Total	1,702,351,000	1,515,959,000
Per cent of bills on hand	79.23	51.78
Otherwise secured:		
Total	$446,151,000	$1,411,659,000
Per cent of bills on hand	20.77	48.22

The foregoing shows progress mainly in the accumulation of resources and it is evident that a reduction in the year of but $186,392,000, or 10.95 per cent, in the loans secured by Federal war obligations is unsatisfactory. To the extent that the resources of these banks continue to be used to finance the Government they are withdrawn from the commercial field and the normal utility of the Federal Reserve system is impaired. Taxation impinging principally upon potential saving has prevented the liquidation of a far larger proportion of these loans and has congealed assets that ought to be, and were intended to be, available for business purposes. Indeed, from whatever angle the present system of Federal taxation is approached, it is found to work badly, to penalize frugality and saving, to promote profligate and wasteful expenditure, to interfere with the accumulation of capital and the normal course of industrial development. The Secretary of the Treasury of the United States has recommended changes which would relieve some of the most depressing features of the system, including repeal of the "excess profits" tax and moderation of the surtaxes on individual incomes. Concerning the latter, he has said:

> ". . . methods of taxation employed should in all cases penalize saving and investment as little as possible. Our present surtaxes offend greatly in this respect. . . . The result is to make investment by wealthier taxpayers in the expansion of industry or foreign trade unattractive and unprofitable. It is obvious that this situation should be remedied."

For many years prior to the war the situation of American railways had forced them to finance their extensive capital requirements almost exclusively by issues of bonds and secured notes. Railway stock had not been marketable upon terms which it was practicable to meet. The market for such bonds was supplied principally by insurance companies, savings banks, trust estates and large individual investors. The system of taxation criticized by the Secretary of the Treasury has not only substantially destroyed the market supplied by the class last indicated, but has transformed those who were formerly potential purchasers in large amounts into sellers of railway bonds. That is to say, these individual investors now find it unprofitable to purchase such securities and, on the other hand, regard it as desirable to transfer their investments to other classes of securities and, therefore, offer portions of their present holdings for sale whenever the market appears to be favorable. It has been suggested that a new market among smaller investors can be built up, but, as to railway securities, this has not yet been accomplished and the present state of railway credit does not warrant much confidence that it is possible except after prolonged effort and a considerable lapse of time. The financial necessities of the railways are imperative and cannot be postponed without heavy loss to the people and their industries.

By order of the Board of Managers, L. F. LOREE, President.

(Adv.)

Railway Officers

Executive

Harry E. Paisley, treasurer of the Philadelphia & Reading, has been elected vice-president and treasurer of the Reading Company, effective April 21.

Albert B. Bierck, comptroller of the Philadelphia & Reading, has been elected vice-president of the Reading Company, with headquarters at the Reading Terminal, Philadelphia, effective April 21. Mr. Bierck was born on October 9, 1867, at New York. He was educated in the New York University and began railroad work in 1885 as freight clerk for the Pennsylvania. He went to the Baltimore & Ohio in 1887 and remained in charge of lighterage until 1889, when he was appointed traveling agent of the Union Pacific and the Northern Pacific. In 1891 he became general manager and auditor of the Prospect Park and Coney Island, which position he held until 1892, when he was appointed auditor of the Long Island, serving in that capacity until 1910. He was then promoted to general auditor and shortly after the railroads were placed under federal control, his title was changed to federal auditor. Besides being federal auditor of the Long Island he became federal auditor of the Philadelphia & Reading, the Central of New Jersey, the Baltimore & Ohio, New York Terminals, and the Staten Island Rapid Transit, and served in that capacity until the termination of federal control, when he was appointed comptroller of the Philadelphia & Reading.

Aaron M. Burt, whose appointment as assistant to the vice-president in charge of operation of the Northern Pacific was announced in the *Railway Age* of March 26 (page 1073), was born on May 1, 1866, at Syracuse, N. Y. Mr. Burt entered railway service in March, 1885, with the Colorado Midland, as an axeman in the engineering department, and up to January 1, 1897, held various positions in the engineering departments of that road, the Northern Pacific, the Adirondack & St. Lawrence, the Wisconsin Central, now part of the Minneapolis, St. Paul & Sault Ste. Marie, and the Chicago & North Western. In 1897, he was appointed superintendent of bridges and buildings on the Northern Pacific, and five years later he was promoted to assistant division superintendent on the same road. He was later promoted to division superintendent, in which capacity he served on the Dakota, Fargo, Rocky Mountain and Idaho divisions. After 10 years in this position he was appointed chief engineer maintenance of way. From April, 1918, to June, 1919, he served as assistant general manager, and from June, 1919, to March 1, 1920, as assistant director of the Division of Operation of the United States Railroad Administration, in charge of engineering and maintenance, receiving his present appointment on the latter date.

A. M. Burt

Financial, Legal and Accounting

Jay V. Hare, assistant secretary of the Philadelphia & Reading, has been elected secretary, effective April 21, succeeding **George Ziegler,** deceased.

Frederick Reel, transfer agent of the Philadelphia & Reading, has been appointed assistant secretary and transfer agent of the Reading Company, effective April 21.

W. G. Van DeWater, who has been elected secretary and treasurer of the Delaware, Lackawanna & Western, with headquarters at New York, as noted in the *Railway Age* of March 5 (page 741), served as auditor of the coal department of the same road at Scranton, Pa., during the greater part of federal control. Mr. Van DeWater was educated in New York. He entered the employ of the Delaware, Lackawanna & Western Express Company at Hoboken, N. J., in April, 1876, as office boy. Later he became clerk, then express messenger, baggage master, cashier, agent and auditor consecutively. In July, 1886, he was transferred to the auditor's office of the Delaware, Lackawanna & Western Railroad at New York. He was promoted to auditor of disbursements, with headquarters at New York, on September 1, 1906, and transferred to Scranton as auditor of the coal department on December 8, 1908.

Operating

H. L. Bell, acting superintendent of the Ogden Union & Depot, has been appointed superintendent, with headquarters at Ogden, Utah, effective March 10.

W. M. Neal, assistant general superintendent of the Quebec district on the Canadian Pacific, has been transferred to the Ontario district, with headquarters at Toronto, succeeding J. K. Savage, who has been promoted, effective April 19.

George H. Westcott, general freight and passenger agent of the Copper Range, has been appointed general manager with headquarters at Houghton, Mich., succeeding **F. R. Bolles,** resigned.

C. G. Richmond, assistant superintendent of stations and transfers of the Illinois Central and the Yazoo & Mississippi Valley, has been appointed superintendent of stations and transfers succeeding **J. L. East,** who has been promoted, effective April 21. The position of assistant superintendent of stations and transfers has been abolished.

Frederick W. Brown, who has been appointed assistant to the general manager of the Atlantic Coast Line, with headquarters at Wilmington, N. C., served as staff officer of the Southern and associated railroads during federal control. Mr. Brown was born on February 17, 1872, at New Canaan, Conn. He was educated at the high school at South Norwalk, Conn. His first railroad work began on June 1, 1887, as freight clerk for the New York, New Haven & Hartford at Stamford, Conn. He became clerk for the Housatonic, now part of the New York, New Haven & Hartford, in 1889. Afterwards he served as operator, despatcher, chief despatcher and trainmaster, consecutively. From 1901 until 1902 he was despatcher for the New York, New Haven & Hartford. He was then appointed chief clerk to the superintendent of the New York division, with headquarters at New York. In 1906 he was promoted to assistant superintendent of the same division, with headquarters at New Haven, Conn., in charge of the New Haven terminal. He went to the Southern as despatcher in 1906 and from then until 1914 he served as trainmaster, superintendent terminals and superintendent of the St. Louis-Louisville divisions, respectively. He was sent to Washington, D. C., as chief in charge of train tonnage bureau in 1914 and remained in that capacity until 1916, when he was appointed assistant to the general manager and assistant to the vice-president of the Southern. Shortly after the railroads went under federal control he was appointed staff officer, as mentioned above.

Traffic

L. B. Pittman has been appointed commercial agent of the Seaboard Air Line, with headquarters at Richmond, Va., effective April 15.

Stuart C. Leake has been released from military service and has resumed his former position as commercial agent

of the Richmond, Fredericksburg & Potomac, with headquarters at Richmond, Va., effective April 15. Mr. Leake served as a captain in the construction division of the United States Army.

L. M. Souders, acting assistant general freight agent of the New York Central, lines west of Buffalo, has been appointed general eastern freight agent, with headquarters at New York, effective April 1, and **R. J. Hopper,** has been appointed general agent, with the same headquarters, effective the same date.

Frederick D. Claggett, who has been appointed assistant freight traffic manager of the Southern, with headquarters at Washington, D. C., as noted in the *Railway Age* of April 16 (page 1223), served as general freight agent from January, 1917, until the termination of federal control. Mr. Claggett was born on August 14, 1874, at Hagerstown, Md. He graduated from the Washington County High School and began railroad work in September, 1891, with the Norfolk & Western. He went to the Southern in November, 1895, in the freight traffic department at Washington, D. C. On March 1, 1897, he entered the freight traffic department of the Cincinnati, New Orleans & Texas Pacific. He was appointed assistant general freight agent of that road, with headquarters at Cincinnati, Ohio, on June 1, 1912, and retained that position until he became general freight agent of the Southern, in January, 1917, as mentioned above.

E. T. Willcox, who has been appointed assistant freight traffic manager of the Seaboard Air Line, as noted in the *Railway Age* of March 5 (page 748), served as general freight agent at the time of his appointment to that position. Mr. Willcox began railroad work as rate clerk in the office of the assistant general freight agent of the Kansas City, Memphis & Birmingham in 1893, and remained in that capacity until 1894, being transferred from Memphis, Tenn., to Birmingham, Ala., during that interval. He was promoted to chief clerk at Birmingham in 1895 and in 1897 was appointed contracting freight agent with the same headquarters. Although he remained at Birmingham, in 1901 he transferred his services to the St. Louis-San Francisco as commercial agent. He was appointed division freight agent in 1905 and assistant general freight agent in 1907, at which time he returned to Memphis, Tenn., where he remained in the same capacity until September 1, 1911. He was then transferred to St. Louis, Mo. On December 1, 1911, he became assistant general freight agent of the Seaboard Air Line, with headquarters at Birmingham. He was promoted to general freight agent, with headquarters at Norfolk, Va., on July 1, 1916, and with the exception of a short time during the period of federal control, when he served as chairman of the committee of freight traffic control under C. R. Gray, director of the division of operation of the Railroad Administration, he served in that positon until his recent promotion as noted above.

Mechanical

G. S. Edmonds, recently appointed acting superintendent of motive power of the Delaware & Hudson, with headquarters at Colonie, N. Y., has been appointed superintendent motive power, succeeding **James H. Manning,** deceased; and **H. G. Becker,** general foreman at Colonie, has been appointed shop superintendent to fill the position made vacant when Mr. Edmonds was appointed acting superintendent motive power.

Purchasing and Stores

G. W. Bichlmeir has been appointed purchasing agent of the Kansas City Southern, effective March 1, succeeding **W. S. Atkinson,** resigned.

W. J. Diehl, general storekeeper of the Mobile & Ohio, with headquarters at Mobile, Ala., has been appointed purchasing agent, with the same headquarters, succeeding **J. A. Turner,** resigned. The office of general storekeeper has been abolished.

Engineering, Maintenance of Way and Signaling

R. F. Nicholson has been appointed assistant engineer of the Portland division of the Grand Trunk, with headquarters at Portland, Me., effective April 15.

Edward B. Pry, whose appointment as superintendent of telegraph and signals of the Southwestern region of the Pennsylvania System, with headquarters at St. Louis, Mo., was announced in the *Railway Age* of March 12 (page 805), was born at Burgettstown, Pa., on January 12, 1872. Mr. Pry entered the service of the Pittsburgh, Cincinnati, Chicago & St. Louis as signal maintainer on December 12, 1894. Six years later he was promoted to signal foreman and on February 1, 1903, was appointed signal supervisor on the Grand Rapids & Indiana. Three years later he was promoted to signal inspector on the Pennsylvania, Lines West, with headquarters at Pittsburgh, Pa., which position he held until his recent appointment as superintendent of telegraph and signals of the Southwestern region of the Pennsylvania System, with headquarters at St. Louis.

E. B. Pry

G. C. Koons, assistant division superintendent of the Pennsylvania, with headquarters at Miffintown, Pa., has been promoted to assistant chief engineer, with headquarters at Philadelphia, effective March 1.

Fred W. Bender, who has been appointed signal engineer of the Central of New Jersey, with headquarters at Elizabeth, N. J., as noted in the *Railway Age* of February 27 (page 661), served as assistant signal engineer during federal control. Mr. Bender was born at Elizabeth, N. J., on October 15, 1882. His first railroad work began as secretary to the superintendent of telegraph of the Central of New Jersey. During part of the time that he served in the capacity just mentioned the department in which he served included the telephone, electric light, power and signals of the entire system. In 1902, however, the signal department became a separate organization and at that time he was appointed chief clerk. For some time following he performed the duties of assistant engineer and in 1918 he was given the title of that office. As noted above, he retained that position until his promotion on March 1.

F. W. Bender

Charles A. Whitcomb, circuit designer in the signal engineers' office of the Boston & Maine, has been promoted to signal supervisor of the Berkshire division, with headquarters at North Adams, Mass., effective on April 1.

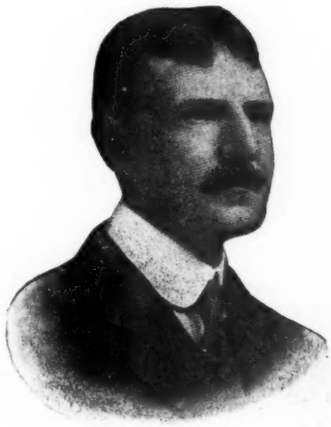
Charles Stephens, signal engineer of the Chesapeake & Ohio, with headquarters at Richmond, Va., has been ap-

pointed, in addition, signal engineer of the Hocking Valley, with the same headquarters, effective April 1.

T. H. Gatlin, who has been appointed chief engineer in charge of construction of the Southern, with headquarters at Washington, D. C., as noted in the *Railway Age* of March 5 (page 749), served as assistant to the president from June, 1918, until the termination of federal control. Mr. Gatlin was born on November 8, 1876, at Tarboro, N. C. He studied at Trinity College in Durham, N. C. His first railroad work began in May, 1892, in the engineering department of the Atlantic Coast Line. He went to the East Carolina, as chief engineer in 1899, and served in that capacity until 1901. From March, 1905, until July, 1906, he was assistant chief engineer in the maintenance of way office of the same road in charge of track work drafting. Later he was appointed engineer maintenance of way of the Middle district of the Southern, with headquarters at Knoxville, Tenn. On August 1, 1911, he was promoted to assistant chief engineer maintenance of way and structures, with headquarters at Washington, D. C. He was appointed assistant to the vice-president in charge of operation in January, 1917, and retained that position until he became assistant to the president on the date mentioned above.

T. H. Gatlin

Alexander Holley Rudd, whose appointment as chief signal engineer of the Pennsylvania system was announced in the *Railway Age* of February 20, page 598, was born March 8, 1867, in Lakeville, Conn. He graduated from the Sheffield Scientific School, Yale University, in 1886, and entered railway service as draftsman in the real estate department of the Pennsylvania in 1886. In 1888 he was promoted to draftsman in the signal department, and in 1892 was appointed inspector of signals of the New York Central & Hudson River. He was later promoted to signal engineer of that road, and in 1893 was appointed assistant superintendent of signals on the Hudson division of that road. In 1894 he was appointed foreman of electric signals, Hudson division, on the New York, New Haven & Hartford, and was later appointed signal engineer of the Hartford and Valley divisions of that road. On April 1, 1900, he was appointed signal engineer of the entire system of the Delaware, Lackawanna & Western, returning to the Pennsylvania as assistant signal engineer in 1903. He was promoted to signal engineer of the Pennsylvania in 1907, which position he has held until his present appointment.



A. H. Rudd

C. E. Dare, supervisor of the Fredericksburg & Potomac, with headquarters at Fredericksburg, Va., has been appointed resident engineer, succeeding **E. M. Hastings,** promoted, and **G. A. Thomas,** transitman, has been appointed supervisor, with headquarters at Fredericksburg, succeeding Mr. Dare, effective March 1.

Wm. Post, whose appointment as superintendent of telegraph and signals of the Central region of the Pennsylvania System was announced in the *Railway Age* of March 12 (page 805), was born at Andover, Conn., on July 10, 1876. He entered the signal department construction forces of the New York, New Haven & Hartford in May, 1896. He was later appointed batteryman and then promoted to maintainer. In 1900, he was appointed division signal foreman on the same road, resigning in June, 1905, to become circuit draftsman in the signal engineer's office of the Pennsylvania. In February, 1906, he was promoted to assistant supervisor of signals on the West Jersey & Seashore and in December of the same year he was transferred to the Pittsburgh division as assistant supervisor of signals. He was promoted to supervisor in February, 1909, having jurisdiction over the Chautauqua division. In June of the same year he returned to the signal engineer's office and the following month became supervisor of signals of the New York division. On August 1, 1907, he was promoted to assistant signal engineer and in the following year to assistant superintendent of the Middle division, with headquarters at Mifflin, Pa. Later in the same year he returned to the Pittsburgh division as assistant superintendent, with headquarters at Cresson, Pa., which position he held until his recent appointment.

Wm. Post

Julian D. Jones, division operator on the Williamsport division of the Pennsylvania, has been appointed superintendent of telegraph and signals of the Eastern region of the Pennsylvania System, with headquarters at Philadelphia, Pa. Mr. Jones was born at Richmond, Va., on August 23, 1883, and was educated at Virginia Polytechnic Institute. On March 1, 1910, he entered the service of the Pennsylvania Railroad as electrical engineer in the telegraph department. In October of the following year he was appointed assistant division operator on the Pittsburgh division and on January 16, 1916, he became division operator on the Williamsport division, where he remained until November, 1917, when he entered military service as captain in the Signal Corps of the United States Army. In January of the following year he was assigned to duty in the office of the chief signal officer at Tours, where he was engaged in engineering work on telegraph and telephone lines of communication on heavy and light railroads. On January 3, 1919, he was assigned to duty with the transportation corps and in February of last year he was promoted to the rank of Major in the Signal Corps. He served as general superintendent of telegraph of the transportation

J. D. Jones

corps lines in the service of supply of the American Expeditionary Force from April to July, 1919. He then returned to the United States and resumed duty as division operator on the Williamsport division of the Pennsylvania, which position he held until his recent promotion.

Alden Monroe Pence, division operator on the Cincinnati division of the Southwest System of the Pennsylvania, Lines West, has been promoted to assistant superintendent of telegraph and signals of the Southwestern region of the Pennsylvania System, with headquarters at St. Louis, Mo., effective March 18.

D. Rounseville, assistant to the chief engineer of the Chicago & North Western, with headquarters at Chicago, has been appointed assistant engineer of maintenance of lines east of the Missouri River, with the same headquarters. **A. S. Redfield,** division engineer of the Northern Wisconsin division, with office at Fond du Lac, Wis., has been promoted to assistant engineer of maintenance of lines west of the Missouri River, with office at Omaha, Neb. **T. J. Irving,** division engineer of the Southern Illinois division, with headquarters at South Pekin, Ill., has been transferred to the West Iowa division, with headquarters at Boone, Ia. **J. A. Dyer,** division engineer of the Madison division, with headquarters at Madison, Wis., has been transferred to the Iowa and Minnesota division, with headquarters at Mason City, Ia. **W. T. Main,** division engineer of the Black Hills division and the Wyoming & North Western, with headquarters at Chadron, Neb., has been transferred to the Northern division, with headquarters at Eagle Grove, Ia. **C. J. Frederici,** general inspector of bridges, with headquarters at Chicago, has been promoted to division engineer of the Northern Wisconsin division, with headquarters at Fond du Lac, Wis., succeeding Mr. Redfield. **H. G. Lennox** has been appointed division engineer of the Southern Illinois division, with headquarters at South Pekin, Ill., succeeding Mr. Irving. **B. R. Kulp** has been appointed division engineer of the Madison division, with headquarters at Madison, Wis., succeeding Mr. Dyer. **D. K. Van Ingen** has been appointed division engineer of the Black Hills division and the Wyoming and North Western, with headquarters at Chadron, Neb., succeeding Mr. Main. **H. M. Spahr** has been appointed division engineer on the Lake Shore division, with headquarters at Green Bay, Wis. **R. D. Anderson** has been appointed division engineer, with jurisdiction over the Dakota division, the Pierre & Ft. Pierre Bridge and the Pierre, Rapid City & North Western, with headquarters at Huron, S. D.

General

PENNSYLVANIA RAILROAD

The following additional appointments have been made, effective March 1:

Name	Position.	Headquarters.
J. H. Harris	Eng. m. w. N. J. div.	New York
J. H. Nichol	Eng. m. w. Cen. Penn. div.	Wil'ms'port
C. P. MacArthur	Eng. m. w. Northern div.	Buffalo
W. T. Covert	Eng. m. w. Penn. div.	Pittsburgh
Fred H. Watts	Eng. m. w. Ill. div.	Chicago
W. R. Hillary	Eng. m. w. Northern div.	Toledo, O.
J. H. Redding	Asst. supt. Pittsburgh div.	Cresson, Pa.
H. H. Garrigues	Eng. m. w. Southern div.	Wilm'gton
J. B. Baker	Eng. m. w. Lake div.	Clev'land, O.
R. R. Nace	Eng. m. w. E. Ohio div.	Pittsburgh
C. E. Brinser	Eng. m. w. E. Penn. div.	Harrisburg
C. W. Richey	Div. eng. Terminal div.	Pittsburgh
F. D. Davis	Div. eng. N. Y. div.	New York
J. E. Hopkins	Div. Eng. Monongahela div.	Pittsburgh
W. F Miller	Div. eng.	Wil'ms'port

Railroad Administration

Walker D. Hines has resigned as director general of railroads, effective May 15, and after a vacation trip abroad he plans to resume the practice of law in New York City. Max Thelen, now director of the Division of Liquidation Claims of the Railroad Administration, has been recommended to the President by Mr. Hines for appointment as his successor to remain in charge of the winding up of the affairs of the Railroad Administration. In accepting Mr. Hines' resignation the President wrote that he could not let the director general retire without telling him how he had "personally valued and admired the quite unusual services you have rendered the government and the country." Mr. Hines has been connected with the Railroad Administration since its organization. He was first appointed assistant to the director general and later, when Mr. McAdoo left Washington for an extended trip, he was appointed assistant director general and left in direct charge of the organization at Washington. He was appointed director general to succeed Mr. McAdoo on January 11, 1919. Prior to federal control he was chairman of the board of the Atchison, Topeka & Santa Fe and a member of the law firm of Cravath, Henderson & de Gersdorff. A photograph and complete sketch of Mr. Hines' career were published in the *Railway Age* of January 17, 1919 (page 187).

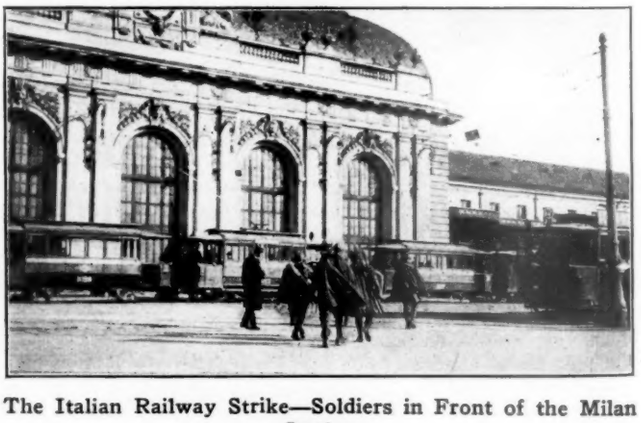
Obituary

J. E. Duval, general superintendent car service of the Grand Trunk, with headquarters at Montreal, Que., died in that city on April 28 at the age of 60 years.

Colonel John Bogart, well known civil engineer of New York, and formerly New York state engineer, died at his home in New York on April 25, at the age of 84 years.

George H. Gilman, master car builder of the Northern Pacific, with headquarters at St. Paul, Minn., died on February 27 after a short illness. Mr. Gillman was born at McArthur, Ohio, on April 11, 1862. He began railroad work as a car carpenter on the Northern Pacific when 22 years old. In October, 1884, shortly after entering the employ of that road, he was promoted to car foreman. While serving in that capacity he was transferred several times to different places. He was appointed shop superintendent and master car builder at the Como shops in 1903, and on November 26, 1905, his title was changed to master car builder.

Thomas J. Burns, superintendent rolling stock of the Michigan Central, with headquarters at Detroit, Mich., died in that city on April 18. Mr. Burns was born at Hillsdale, Mich., on July 24, 1868. He graduated from Assumption College and spent some years at Grand Seminary, Montreal. His first railroad work began as clerk in the maintenance of way department of the Michigan Central at Bay City, Mich. He became engine despatcher on November 1, 1896, and was appointed chief clerk to the master mechanic at Jackson, Mich., on December 15, 1902. In August, 1905, he was transferred to Detroit, Mich., as chief clerk to the superintendent motive power, and promoted to assistant to the superintendent motive power on July 1, 1909. He was appointed assistant superintendent motive power on June 1, 1912. In 1915, when the locomotive and car departments of the Michigan Central were separated, he was appointed to the position he held at the time of his death.



The Italian Railway Strike—Soldiers in Front of the Milan Station